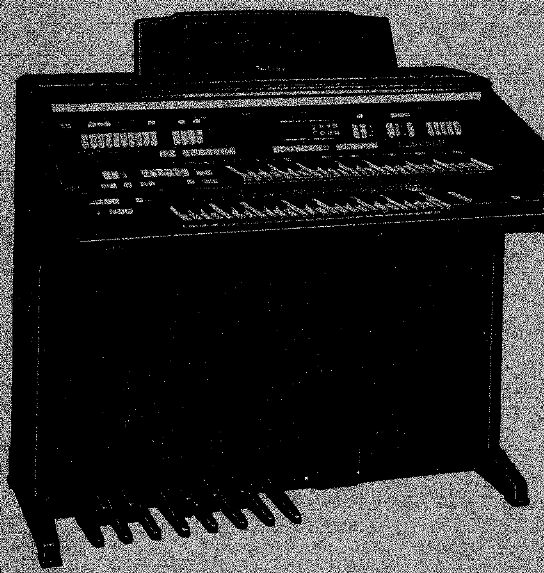
ORDER NO. EOS-83-1052

Service Manual

Electronic Organ

SX-E66

(EN), (ES), (ED), (EI), (EH), (EB), (EF),
(EG), (EW), (EL), (EP), (MC), (XT),
(EK), (XL), (XR), (XS), (X), (XX), (XV)



AREAS

(EN):	Norway
(ES):	Sweden
(ED):	Denmark
(EI):	Italy
(EH):	Holland
(EB):	Belgium
(EF):	France
(EG):	Garmany, Austria
(EW):	Switzerland
(EL):	Finland
(EP):	Spain
(EK):	the United Kingdom
(MC):	Canada
(XT):	Taiwan
(XL):	New Zealand
(XR):	Australia
(XS):	Malaysia, Singapore, South Africa
(X):	the Middle Near East, Hong Kong, the Philippines, Indonesia
(XV):	Venezuela, Ecador, Panama
(XX):	Peru, Chile

Specifications

Keyboards	
• Upper Manual:	44 Keys ($3^{2}/_{3}$ Octaves)
• Lower Manual:	44 Keys ($3^{2}/_{3}$ Octaves)
• Pedal Keyboard:	13 Keys (1 Octave)
Musical Display:	Mode Selector...Tempo, Tempo/Chord, Stopwatch FSC, VSC, PCC, Harmonic Coupler, Techni-Chord, Transpose, APC, Tempo, Chord
Fullband Setting Computer (FSC):	Record, $\boxed{1}$~$\boxed{8}$ (lower keyboard)
Voice Setting Computer (VSC)	Record, I, II, III, IV, V, VI, VII, Cancel, 20 Combination VSC (lower keyboard: 1~20)
Orchestral Conductor	
• Upper:	Upper Tab Voices, Percussive Presets, Organ Presets, Orchestral Presets, String Ensemble, Solo Synthe Presets, Vocal Ensemble
• Lower:	Lower Tab Voices, Percussive Presets, Organ presets, Orchestral Presets, String Ensemble, Solo Synthe Presets, Vocal Ensemble
Upper Tones	
• Tab Voices:	Flute 16', 8', $5^{1}/_{3}$', 4', $2^{2}/_{3}$', 2', $1^{1}/_{3}$', 1'—(digital drawbars), String 8', String 4'...Slow Attack, Upper Volume
Percussive Tone:	4', $2^{2}/_{3}$', 2', Click...Full, Long
Harmonic Coupler:	$2^{2}/_{3}$', Program, Cancel
• Percussive Presets: (Upper & Lower)	Acoustic Piano, Electric Piano, Harpsichord, Vibraphone, Acoustic Guitar, Jazz Guitar, Banjo...Full
• Organ Presets	I, II (pre-fixed)
• Orchestral Presets: (Upper & Lower)	Trombone, Saxophone, Accordion, Clarinet, Wah Brass, Synthe Brass...Full
• String Ensemble:	Upper Volume
• Solo Synthe Presets: (Upper & Lower)	Trombone, Saxophone, Trumpet, Clarinet, Flute, Pan Flute, Synthe Chopper...Volume
• Vocal Ensemble: (Upper & Lower)	Volume

Lower Tones	
• Tab Voices:	Flute 8', 4', 2'—(digital drawbars), String 8', String 4'...Lower Volume
Harmonic Coupler:	2', Program, Cancel
• Organ Preset:	(preset)
• String Ensemble:	Lower Volume
• Percussive Presets:	(Upper & Lower) } common used for upper and lower tones
• Orchestral Presets:	(Upper & Lower)
• Solo Synthe Presets:	(Upper & Lower)
• Vocal Ensemble:	(Upper & Lower)
Bass Tones:	Bass 16', Bass 8', Electric Bass, Acoustic Bass, Tuba, Synthe Bass...Volume
Effects	
• Sustain:	Upper ....On, Length Control U & L Percussive Presets ...On, Length Control Lower ....On, Length Control Bass ....Length Control
• Reverb:	Digital Reverb
• Celeste:	U. Tab Voices, U & L Orchestral Presets U & L Solo Synthe Presets, L. Tab Voice
• Multi-Tremolo/Vibrato:	Chorus/Tremolo, Vibrato...U. Tab Voices L. Tab Voices
• Glide:	Foot SW.
Techni-Chord:	On, Close/Open
Drum Percussion	
• Rhythm selector:	March, Shuffle, 8 Beat, Funk Rock, Ballad, Swing Rock, Rumba, Guaracha, Mambo, Cha-Cha, Waltz, Swing I, Swing II, 16 Beat, Samba Rock, Disco I, Disco II, Bossanova I, Bossanova II, Samba, Baion, Tango, Jazz Waltz
• Arrange Percussion:	I, II, III
• Drum Percussion Controls:	Volume, Mellow, On—Start/Stop, Synchro, Glide/Rhythm—Foot SW., Tempo Contro Tempo Set
• Fill-In & Intro:	I, II, Solo
Rhythmic Orchestra:	Rhythmic, Melodic...I/II, Volume

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Program Chord Computer (PCC): Record, PCC, Cancel
- Chord Composer: ⊢⊣, 𝄋 ⊕, ◀, DS, ▶, ⟶, ⊢⊣, ⊢⊣, ⊢⊣
- Auto Play Chord: Fingered, Memory, Cancel

Transpose: ♯ (transpose), Record, [G] ~ [C] ~ [F♯/G♭]

Tuning: Free Set, Pitch Control (−, +)

Others: Power Switch, Main Volume, Expression Pedal, Headphone Jack. Microphone Jack (input level: 7.5mV, 10kΩ), Microphone Volume, AUX Jack (input level: 150mV, 10kΩ), Line out 2ch/3ch (output level: 300mV, 600Ω)

Speakers: 30cm 6Ω×1, 20cm 6Ω×3, 6cm 6Ω×2

Maximum Output: 110W (3-channel)

Power Requirement: 300W, AC 120/220/240V, 50/60Hz
AC 220V, 50/60Hz ..... Europe
350VA, AC 120V, 60Hz ...... North America, Taiwan

Cabinet Dimensions: 114.6cm(W)×60.3cm(D)×103.1cm(H)

Net Weight (without bench): 78kg (172.0 lbs.)

CONTENTS

■ INTRODUCTION

ARRANGEMENT OF CONTROL PANEL I-2
PRINTED CIRCUIT BOARD LOCATION I-4
KEYBOARD RANGES I-5
HOW TO ASSEMBLE THE ORGAN I-6
DISASSEMBLY INSTRUCTIONS I-7
MEASUREMENTS AND ADJUSTMENTS I-9
PRECAUTIONS FOR REPAIR I-11
REGISTRATION FOR 20 COMBINATION VSC I-12
INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS I-15

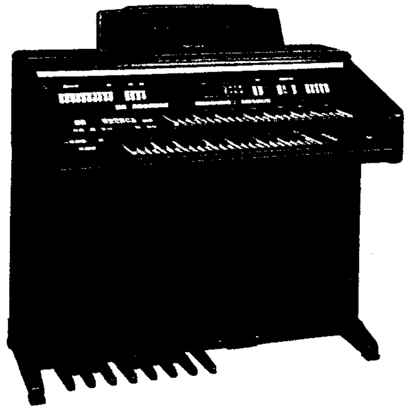
■ SCHEMATIC DIAGRAM

BLOCK DIAGRAM II-1
WIRING CONNECTION DIAGRAM II-3
MOTHER CIRCUIT BOARD (MB) II-5
SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS) II-7
SYSTEM ASSIGNER CIRCUIT BOARD (SAS) II-9
TONE GENERATOR CIRCUIT BOARD (TG) II-10
TONE GENERATOR CIRCUIT DIAGRAM (TG) II-11
ORGAN CIRCUIT DIAGRAM (ORG) II-13
ORGAN CIRCUIT BOARD (ORG) II-15
PERCUSSIVE TONE CIRCUIT BOARD (PCT) II-16
PERCUSSIVE TONE CIRCUIT DIAGRAM (PCT) II-17
PERCUSSIVE PRESETS CIRCUIT DIAGRAM (PPS) II-19
PERCUSSIVE PRESETS CIRCUIT BOARD (PPS) II-21
ORCHESTRAL PRESETS CIRCUIT BOARD (OPS) II-22
ORCHESTRAL PRESETS CIRCUIT DIAGRAM (OPS) II-23
ACCOMPANIMENT CIRCUIT DIAGRAM (ACC) II-25
ACCOMPANIMENT CIRCUIT BOARD (ACC) II-27
SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS) II-28
SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS) II-29
SELECTOR CIRCUIT DIAGRAM (SEL) II-31
SELECTOR CIRCUIT BOARD (SEL) II-33
BASS CIRCUIT BOARD (BAS) II-34
BASS CIRCUIT DIAGRAM (BAS) II-35
DRUM PERCUSSION CIRCUIT DIAGRAM (DP) II-37
DRUM PERCUSSION CIRCUIT BOARD (DP) II-39
TREMOLO & PHASER MODULATION CIRCUIT BOARD (LPM) II-40
TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM (LPM) II-41
CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM (CSM) II-43
CELESTE & STRING ENSEMBLE CIRCUIT BOARD (CSM) II-45
MIXING CIRCUIT BOARD (MIX) II-46
MIXING CIRCUIT DIAGRAM (MIX) II-47
REVERB CIRCUIT DIAGRAM (REV) II-49
REVERB CIRCUIT BOARD (REV) II-51
EXPRESSION CIRCUIT DIAGRAM (EXP) II-52
EXPRESSION CIRCUIT BOARD (EXP) II-52
MUSICAL DISPLAY CIRCUIT DIAGRAM (MD) II-53
U. CONTROL PANEL RIGHT CIRCUIT DIAGRAM (CPR) II-55
U. CONTROL PANEL RIGHT CIRCUIT BOARD (CPR) II-57
U. CONTROL PANEL LEFT CIRCUIT BOARD (CPL) II-60
JACK CIRCUIT DIAGRAM (JACK) II-60
JACK CIRCUIT BOARD (JACK) II-61
U. CONTROL PANEL LEFT CIRCUIT DIAGRAM (CPL) II-63
CONTROL PANEL SW. LEFT CIRCUIT DIAGRAM (CPSL) II-65
CONTROL PANEL SW. LEFT CIRCUIT BOARD (CPSL) II-67
CONTROL PANEL SW. RIGHT CIRCUIT BOARD (CPSR) II-69
CONTROL PANEL SW. RIGHT CIRCUIT DIAGRAM (CPSR) II-70
UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB) II-71
UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB) II-71
PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB) II-72
PEDAL KEYBOARD CIRCUIT BOARD (PKB) II-72
NETWORK CIRCUIT 1 (NW1) II-74
NETWORK CIRCUIT 2 (NW2) II-74
AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS) II-75
AMP & POWER SUPPLY CIRCUIT BOARD (AS) II-77
AC POWER SUPPLY CIRCUIT BOARD (ACP) II-78
POWER SUPPLY CIRCUIT 1 (PS1) II-79
POWER SUPPLY CIRCUIT 2 (PS2) II-80
SX-E66 OUTPUT WAVEFORMS II-81

■ EXPLODED VIEWS & REPLACEMENT PARTS LIST

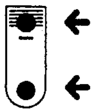
REPLACEMENT PARTS LIST (Electrical Parts) .... III- 1
EXPLODED VIEWS OF PEDAL KEYBOARD .... III- 5
EXPLODED VIEWS OF MANUAL KEYBOARD .... III- 6
EXPLODED VIEWS OF CABINET .... III- 7
(Mechanism, Packing) .... III- 9
PACKING III-13

ARRANGEMENT OF CONTROL PANEL



All buttons and tablets are equipped with LEDs which light up when in operation.

Tablet



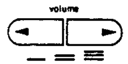
- Turns off when this part is pressed.
- The LED lights up and the tablet turns on when this part is pressed.

Controls

The volumes and effects on the organ are controlled by 2-or 3-stage buttons, except for rhythm tempo controls.

Volume

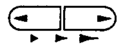
- Pressing the right button increases the volume and the LED on the button lights up.
- Pressing the left button decreases the volume and the LED on the button lights up.
- If you press both buttons simultaneously, the LEDs go out and the volume returns to the normal (intermediate) level.



- Pressing this button increases the volume and the LED on the button lights up.
  Pressing it again causes the LED to go off and the volume to return to the normal level.

Effect

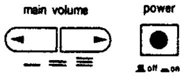
- Press the right button to increase such effects as Sustain, and the left button to decrease them. If you press both buttons simultaneously, the effects return to the intermediate levels.

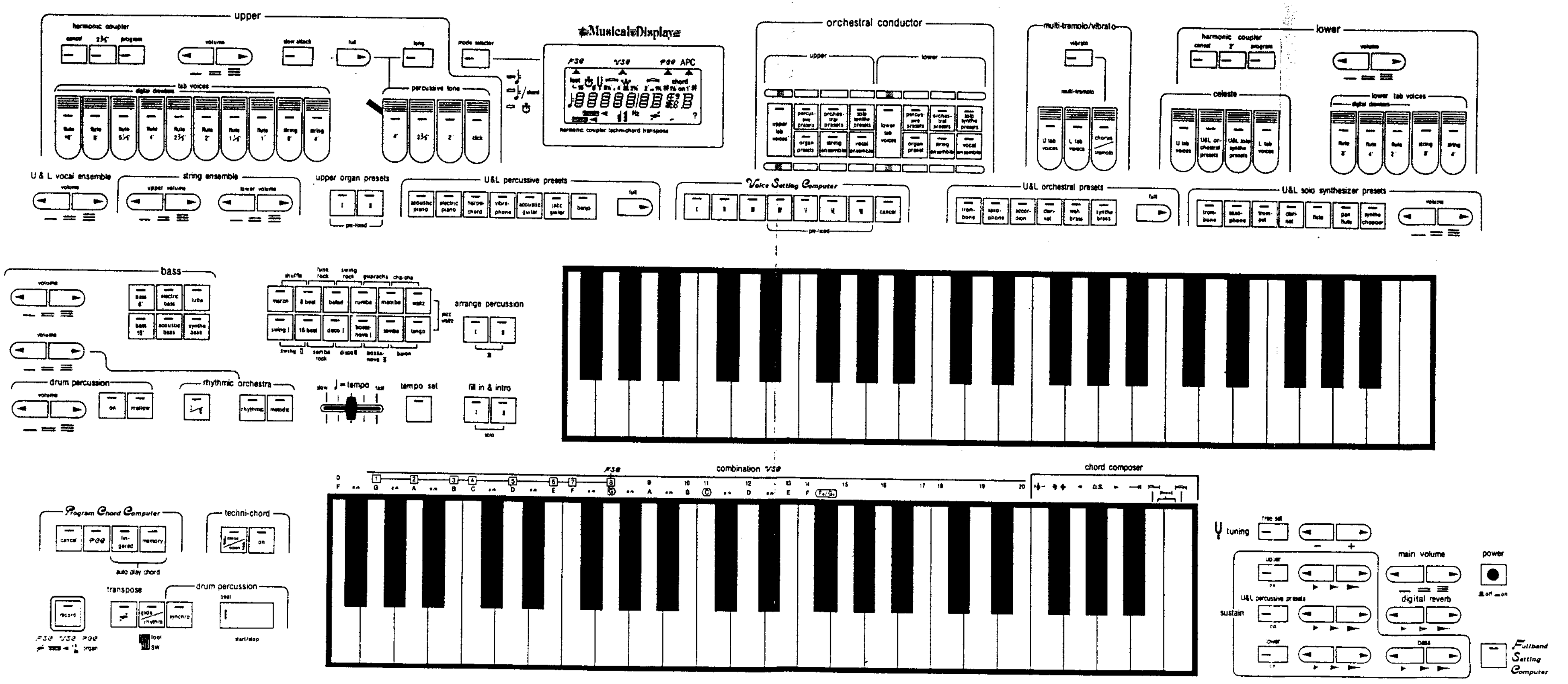


Power/Main Volume Controls

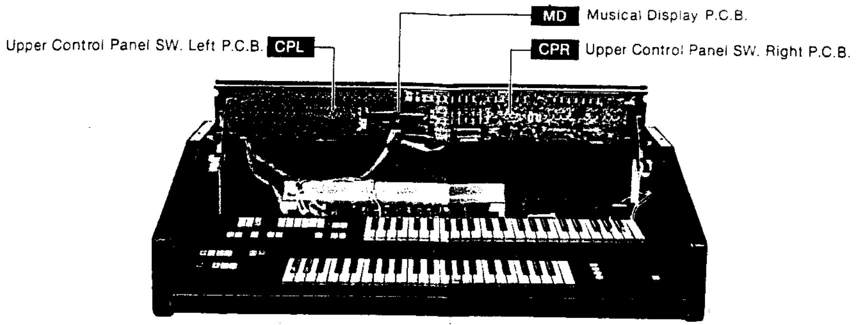
Pressing the power switch turns the organ on.

Main Volume adjusts the loudness of the entire organ.

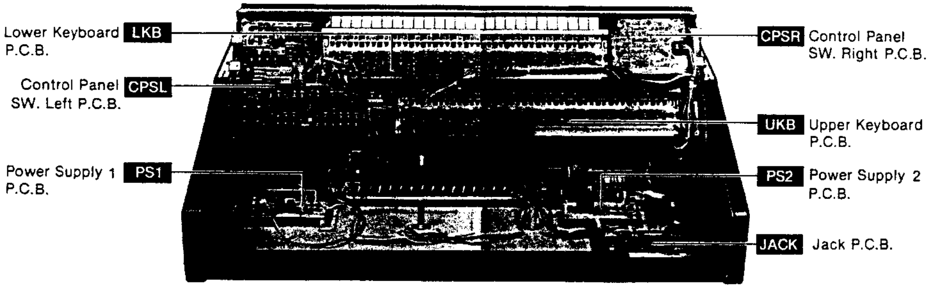

main volume
power
off on


upper
harmonic coupler
cancel
program
volume
slow attack
full
long
mode selector
tab voices
digital drawbars
percussive tone
MusicalDisplay
F30
V30
P00
APC
harmonic coupler
techni-chord
transpose
orchestral conductor
upper
lower
multi-tremolo/vibrato
vibrato
multi-tremolo
lower
harmonic coupler
celeste
lower tab voices
digital drawbars
U & L vocal ensemble
string ensemble
upper volume
lower volume
upper organ presets
pre-load
U&L percussive presets
Voice Setting Computer
cancel
U&L orchestral presets
U&L solo synthesizer presets
bass
arrange percussion
drum percussion
rhythmic orchestra
tempo
tempo set
fill in & intro
combination
chord composer
tuning
main volume
power
digital reverb
sustain
bass
Fullband Setting Computer
Program Chord Computer
techni-chord
auto play chord
transpose
drum percussion
start/stop

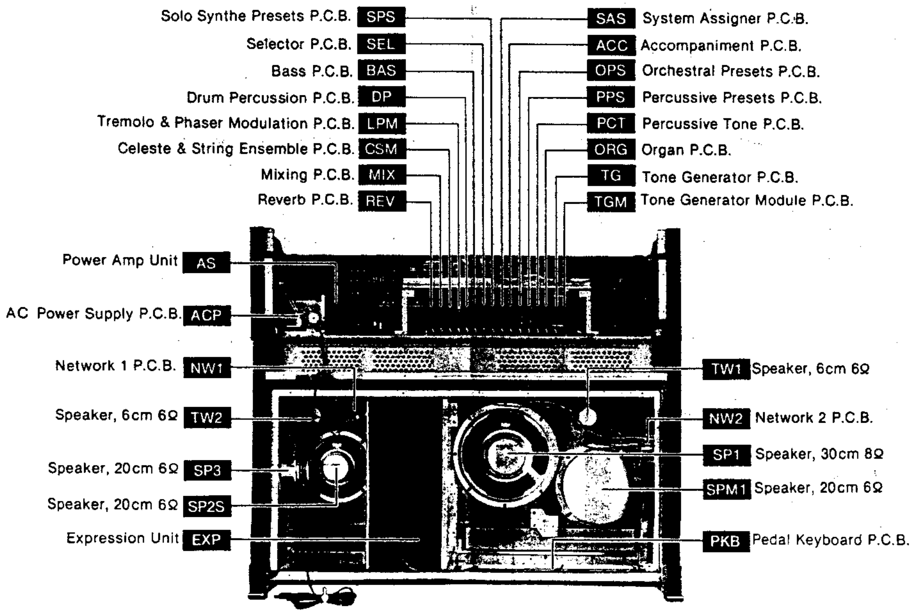
PRINTED CIRCUIT BOARDS LOCATION


MD Musical Display P.C.B.
Upper Control Panel SW. Left P.C.B. CPL
CPR Upper Control Panel SW. Right P.C.B.

[Photo-1]


Lower Keyboard P.C.B. LKB
Control Panel SW. Left P.C.B. CPSL
Power Supply 1 P.C.B. PS1
CPSR Control Panel SW. Right P.C.B.
UKB Upper Keyboard P.C.B.
PS2 Power Supply 2 P.C.B.
JACK Jack P.C.B.

[Photo-2]

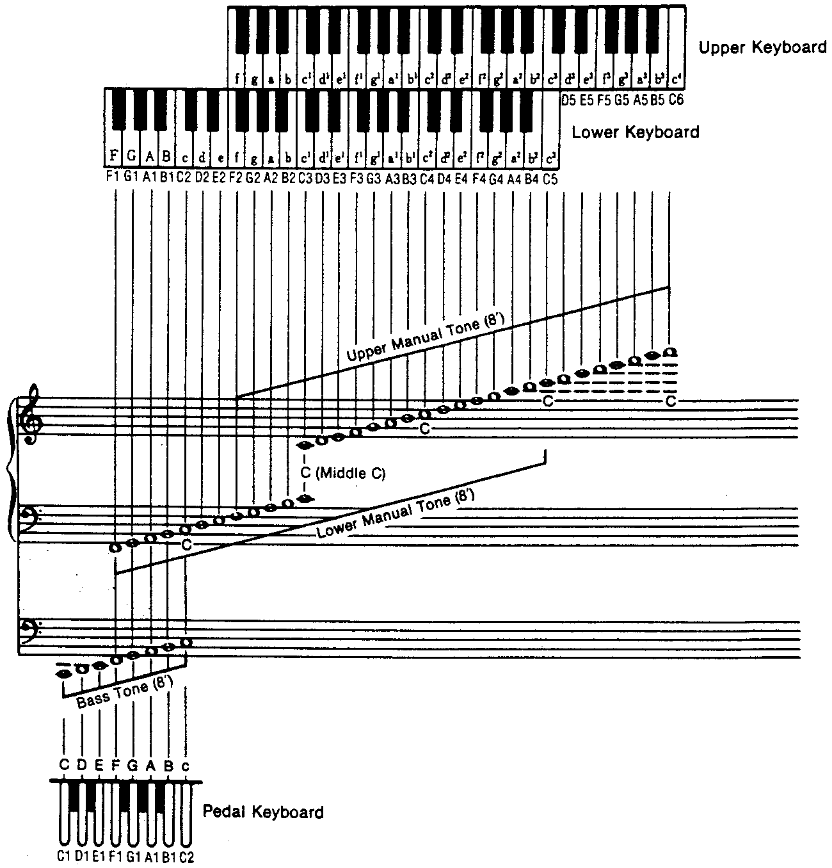

Solo Synthe Presets P.C.B. SPS
Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing P.C.B. MIX
Reverb P.C.B. REV
SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
PPS Percussive Presets P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Amp Unit AS
AC Power Supply P.C.B. ACP
Network 1 P.C.B. NW1
Speaker, 6cm 6Ω TW2
Speaker, 20cm 6Ω SP3
Speaker, 20cm 6Ω SP2S
Expression Unit EXP
TW1 Speaker, 6cm 6Ω
NW2 Network 2 P.C.B.
SP1 Speaker, 30cm 8Ω
SPM1 Speaker, 20cm 6Ω
PKB Pedal Keyboard P.C.B.

[Photo-3]

KEYBOARD RANGES

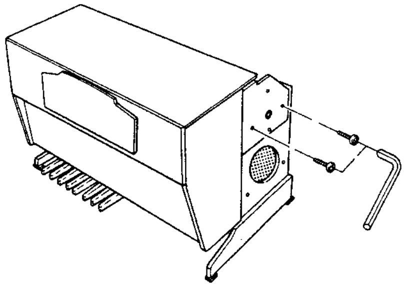
Upper Keyboard	44 Keys	f to c^4 ($3^2/_3$ Octaves)
Lower Keyboard	44 Keys	F to c^3 ($3^2/_3$ Octaves)
Pedal Keyboard	13 Keys	C to c (1 Octave)

⁎ An 8-feet compass is used for each keyboard.


Upper Keyboard
f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3 d^3 e^3 f^3 g^3 a^3 b^3 c^4
D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F G A B c d e f g a b c^1 d^1 e^1 f^1 g^1 a^1 b^1 c^2 d^2 e^2 f^2 g^2 a^2 b^2 c^3
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
C
C
C
C (Middle C)
Lower Manual Tone (8')
C
Bass Tone (8')
C D E F G A B c
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2

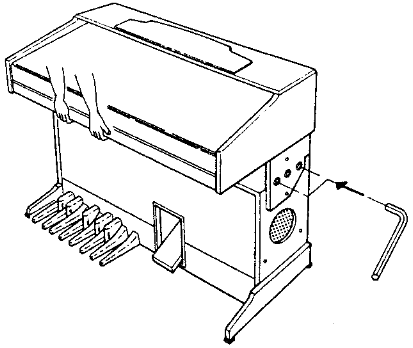
HOW TO ASSEMBLE THE ORGAN

1. Remove the red screws using the supplied wrench.



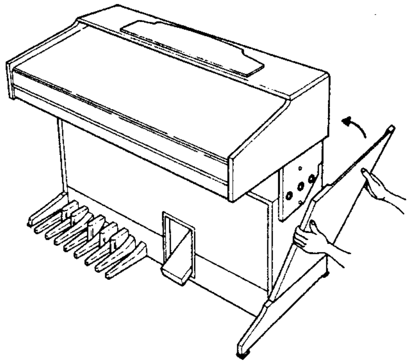
[Fig.-1]

2. Holding the upper cabinet section, lift it into position and tighten the red screws firmly.



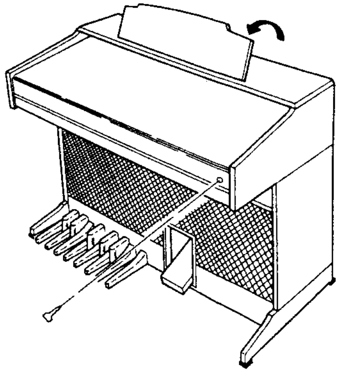
[Fig.-2]

3. Hold each side panels with both hands and install the side panel on the side board of cabinet.



[Fig.-3]

4. Unlock the sliding cover with the accessory key.



[Fig.-4]

■CAUTION

Voltage

Be sure the voltage adjuster at the right, below your organ, is in accordance with local voltage in your area before using this unit. Use a screwdriver to set the voltage adjuster to the local voltage. (There is no voltage adjuster for some countries; the correct voltage is already set.)

Folding Down

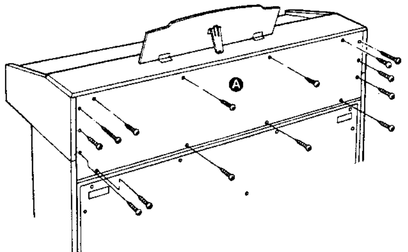
Before folding the upper cabinet section, be sure to lock the key.

DISASSEMBLY INSTRUCTIONS

1. Top Cover

a) Remove the 14 setscrews Ⓐ located on the rear panel. Then the rear panel can be removed.

b) Remove the top cover, slide it back and lift.

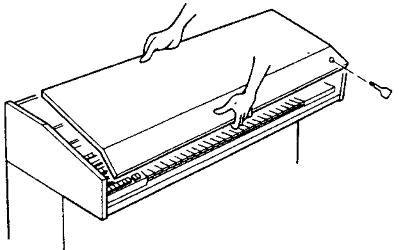


[Fig.-5]

2. Sliding Cover

a) Unlock the sliding cover with the accessory key.

b) After removing the top cover, remove the sliding cover in its fully-closed position.



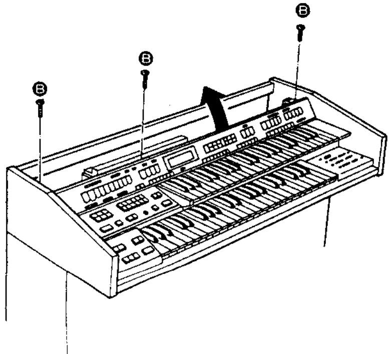
[Fig.-6]

3. Upper Control Panel

a) Remove both top cover and sliding cover according to steps 1 and 2.

b) Remove the 3 red screws Ⓑ which fasten the upper control panel.

c) Then the upper control panel can be opend upwards.



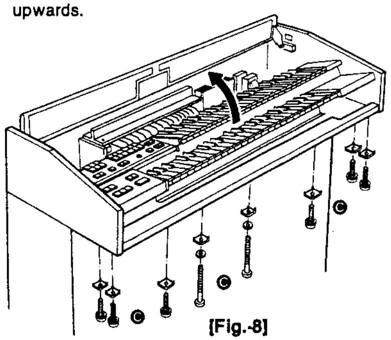
[Fig.-7]

4. Keyboard & End Cover Unit

a) Open the control panel according to steps 1, 2 and 3.

b) Remove the 8 setscrews Ⓒ on the bottom of the shelf-board.

c) Then the keyboard & end cover unit can be opened upwards.



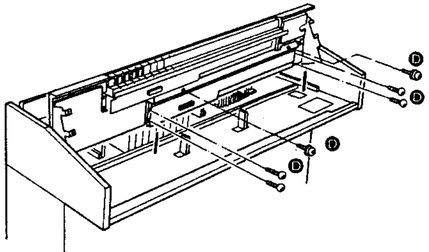
[Fig.-8]

5. Upper Keyboard

a) Open the keyboard and end cover unit according to step 4.

b) Remove the 6 setscrews Ⓓ which fasten the upper keyboard chassis.

c) Then the upper keyboard can be removed.



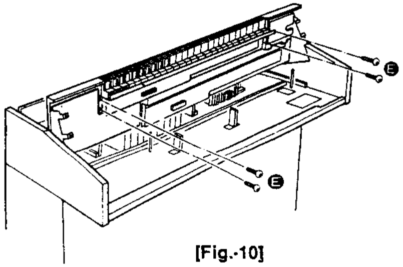
[Fig.-9]

6. Lower Keyboard

a) Open the keyboard and end cover unit according to step 4.

b) Remove the 4 setscrews Ⓔ which fasten the lower keyboard chassis.

c) Then the lower keyboard can be removed.

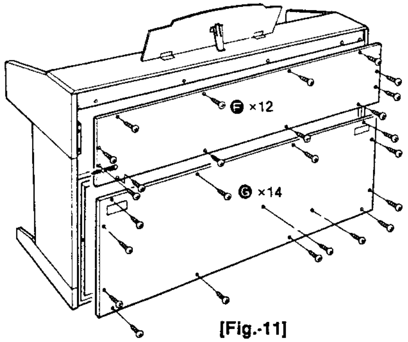


[Fig.-10]

7. Rear Panel

a) Upper cabinet section
Remove the 12 setscrews Ⓕ on the rear panel.

b) Lower cabinet section
Remove the 14 setscrews Ⓖ on the rear panel.



[Fig.-11]

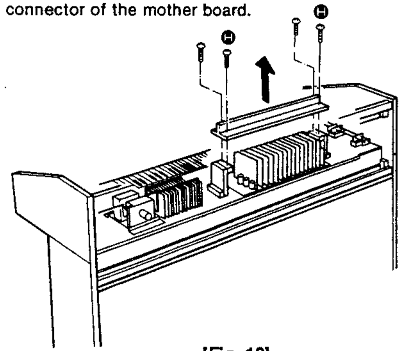
8. Printed Circuit Board (Mother Board Block)

a) Open the control panel according to steps 1, 2 and 3.

b) Remove the rear panel of the upper cabinet.

c) Remove the 4 setscrews Ⓗ on the printed circuit board retainer plate.

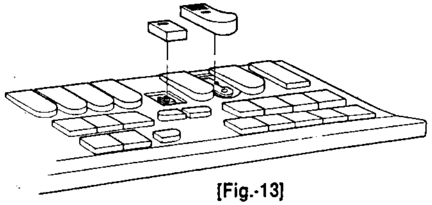
d) Each printed circuit board can be removed from the connector of the mother board.



[Fig.-12]

9. Buttons and Knobs

a) All buttons and knobs can be pulled out.



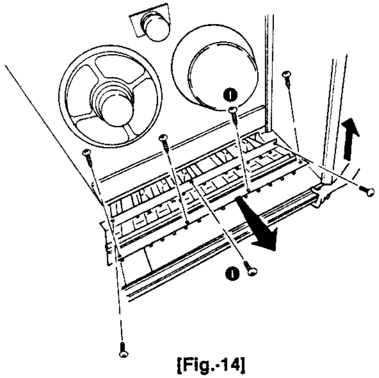
[Fig.-13]

10. Pedal Keyboard

a) Remove the rear panel of the lower cabinet.

b) Remove the 7 setscrews Ⓘ which fasten the pedal keyboard chassis.

c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-14]

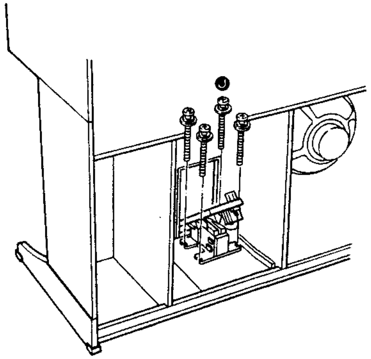
11. Expression Unit

a) Remove the rear panel of the lower cabinet.

b) Remove the 4 setscrews Ⓙ which fasten the expression unit.

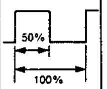
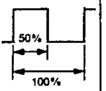
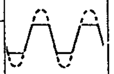
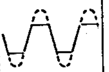
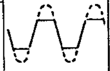
c) The expression unit can be removed.

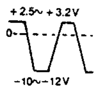
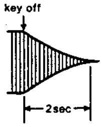
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.

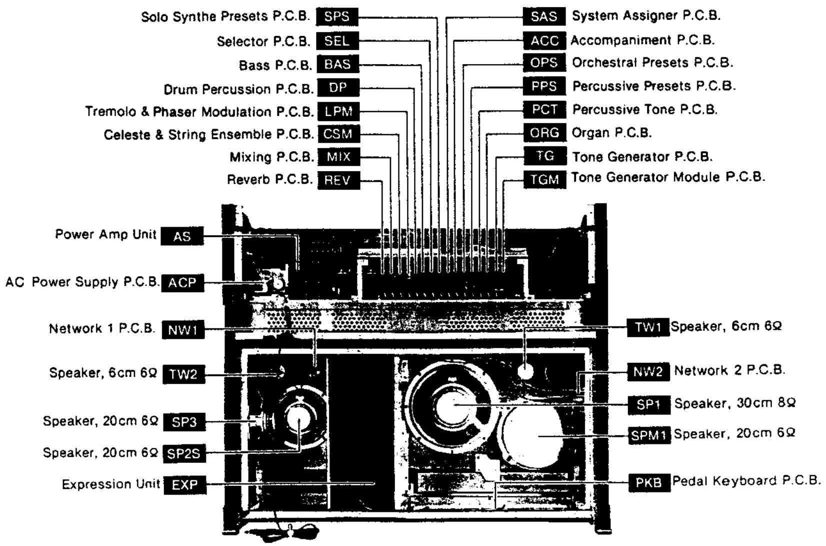


[Fig.-15]

MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (tab)	tuning (free set) ....off u. orch. conductor ......tab voices upper voices ....flute 8′ upper keyboard ....A3 key	Oscilloscope, Frequency counter	Tone Generator Circuit	VR1	MCTC terminal (20cm [SP2S] speaker)	
	1. Connect an oscilloscope to MCTC terminal of tone generator P.C.B. and adjust VR1 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 20cm [SP2S] speaker and make the setting as mentioned here, then confirm the frequency is 440Hz.					(440Hz)
Tuning (mono-tone)	tuning (free set) ....off pedal voices ....bass 8′ pedal keyboard ....A1 key	Oscilloscope, Frequency counter	Tone Generator Circuit	VR2	MCMC terminal (20cm [SP2S] speaker)	
	1. Connect an oscilloscope to MCMC terminal of tone generator P.C.B. and adjust VR2 so that the duty ratio of output waveform is 50%. 2. Connect a frequency counter to 20cm [SP2S] speaker and make the setting as mentioned here, then confirm the frequency is 110Hz.					(110Hz)
Output level (manual)	u. orch. conductor ......tab voices upper voices ....flute 16′, 8′, 4′ upper volume ....loud main volume ....loud expression pedal ......max celeste.....................u. tab voices upper keyboard C5, E5, G5	Electric voltmeter	Mixing Circuit	VR1	30cm (SP1) speaker	0.9Vrms
				VR2	20cm (SP2S) speaker	1.3Vrms
				VR3	20cm (SP3) speaker	1.8Vrms
Expression characteristics	u. orch. conductor ......tab voices upper voices ....flute 16′, 8′, 4′ upper volume ....loud main volume ....loud expression pedal ......max~min upper keyboard C3, E3, G3	Electric voltmeter	System Assigner Circuit	VR1	20cm [SP2S] speaker	35dB
		Adjust VR1 of system assinger P.C.B. so that the change in output is 35dB when the expression pedal is shifted from the maximum to minimum.				
BBD bias (Celeste)	u. orch. conductor ......tab voices	Oscilloscope Oscillator	Celeste & String Ensemble Circuit (CSM)	VR1	Check Point ⑮	
	1. Connect the oscilloscope to check point ⑮ of CSM circuit. 2. Remove C16 50V 1 of CSM circuit, and apply 1kHz sine wave to check point④. Then, adjust the output level of oscillator until the output wave of check point ⑮ is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.					
BBD bias (String ensemble)	u. orch. conductor ......tab voices	Oscilloscope Oscillator	Celeste & String Ensemble Circuit (CSM)	VR2	Check Point ㉔	
	1. Connect the oscilloscope to check point ㉔ of CSM circuit. 2. Remove R38 22K of CSM circuit, and apply 1kHz sine wave to JP5. Then, adjust the output level of oscillator until the output wave of check point ㉔ is clipped. 3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.					
BBD bias (Lessly)	u. orch. conductor ......tab voices	Oscilloscope Oscillator	Tremolo & Phaser Modulation Circuit (LPM)	VR1	Check Point ⑲	
	1. Connect the oscilloscope to check point ⑲ to LPM circuit. 2. Remove the lead terminal on input side of C43 0.022 of LPM circuit, and apply 1kHz sine wave to the terminal. Then, adjust the output level of oscillator until the output wave of check point ⑲ is clipped. 3. Adjust VR1 so that the output waveforms on the oscilloscope are evenly clipped at peak and bottom.					

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Banjo envelope Vibraphone envelope	u. orch. conductor ......percussive presets percussive presets ......banjo or vibraphone	• Banjo Adjust VR2 of percussive presets circuit so that audible modulation noise is minimized when the key is depressed with banjo selected. • Vibraphone Adjust VR1 of percussive presets circuit so that audible modulation noise is minimized when the key is depressed with vibraphone selected.				
Orchestral presets envelope	u. orch. conductor ......orchestral presets orchestral presets ......synthe brass upper keyboard ....C3 key	Oscilloscope	Orchestral Presets Circuit (OPS)	VR1	Check Point ⑨ (IC2 ⑦ pin)	 +2.5~+3.2V 0 −10~−12V
	1. Connect the oscilloscope to check point ⑨ to OPS circuit. 2. Press C3 key of upper keyboard and adjust VR1 so that the waveform on the oscilloscope are evenly clipped at peak and bottom.					
Reverb time 1	u. orch. conductor ......solo presets solo presets ....pan flute	Oscilloscope	Reverb Circuit (REV)	VR1	Check Point ⑪	2sec.
	1. Connect the oscilloscope to check point ⑪ of REV circuit. 2. Adjust VR1 of the REV circuit so that the attenuation time of output waveform is 2sec when F#1 key of the upper keyboard is turned from ON to OFF.					 key off 2sec
Reverb time 2	1. Connect the oscilloscope to check point ⑫ of REV circuit. 2. Adjust VR2 of the REV circuit so that the attenuation time of output waveform is 2sec when D3 key of the upper keyboard is turned from ON to OFF.			VR2	Check Point ⑫	
Reverb time 3	1. Connect the oscilloscope to check point ⑬ of REV circuit. 2. Adjust VR3 of the REV circuit so that the attenuation time of output waveform is 2sec when D2 key of the upper keyboard is turned from ON to OFF.			VR3	Check Point ⑬	


Solo Synthe Presets P.C.B. SPS
Selector P.C.B. SEL
Bass P.C.B. BAS
Drum Percussion P.C.B. DP
Tremolo & Phaser Modulation P.C.B. LPM
Celeste & String Ensemble P.C.B. CSM
Mixing P.C.B. MIX
Reverb P.C.B. REV
SAS System Assigner P.C.B.
ACC Accompaniment P.C.B.
OPS Orchestral Presets P.C.B.
PPS Percussive Presets P.C.B.
PCT Percussive Tone P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
Power Amp Unit AS
AC Power Supply P.C.B. ACP
Network 1 P.C.B. NW1
Speaker, 6cm 6Ω TW2
Speaker, 20cm 6Ω SP3
Speaker, 20cm 6Ω SP2S
Expression Unit EXP
TW1 Speaker, 6cm 6Ω
NW2 Network 2 P.C.B.
SP1 Speaker, 30cm 8Ω
SPM1 Speaker, 20cm 6Ω
PKB Pedal Keyboard P.C.B.

PRECAUTIONS FOR REPAIR

- Troubles often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

Symptom	Cause and measure
Lower keyboard on pedal keyboard keep sounding.	When fingered and memory button are ON, or PCC button is ON, while rhythm is OFF, if lower keyboard is played, then lower keyboard and pedal keyboard will keep sounding. • Please push the cancel button of the program chord computer.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only up to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
Harmonic effect is not given.	Harmonic coupler is effective only when tab voice is individually used. For example, if tab voice is used in combination with string ensemble, then harmonic effect will not be given.
When flute 2′ $1^{1}/_{3}'$ or 1′ of tab voices is selected, the tone is lowered by 1 octave in the range of top octave.	The tone becomes 1 octave lower: top octave (c^4 key) in flute 2′, (f^3∼c^4 keys) in flute $1^{1}/_{3}'$, and (c^3∼c^4 keys) in flute 1′ respectively.
Lower-pitched (19 keys) sounds of upper keyboard are different in tone from the higherpitched (25 keys) sounds.	During memory operation of voice setting computer, transpose, full-band setting computer and harmonic coupler, the tones and effects of lower keyboard can be checked by the 19 lower-pitched sound keys of upper keyboard.
Click sound is not made.	Click sound is made only with flute tablet selected. • It is not make by individual use of click tablet.
When PCC button of program chord computer is used for chord memory operation, pressing the chord composer key makes the error sound — sharp whistle.	Data of one tune up to 74 chords can be stored in the program chord computer. The alarm is given by normal whistle at the 74th chord, and the error sound is given by sharp whistle at the 76th chord and over.
With synchro button depressed, rhythm does not start when accompaniment is played.	If rhythm is stopped by foot switch, synchro button will also turn OFF. • If rhythm is stopped by foot switch, synchro button must be turned ON. • During the play mode of auto play chord, synchro start is not possible with pedal keyboard.
Rhythm and fill-in patterns spontaneously change.	To make the play variegated, the bass pattern is designed to change spontaneously during drum percussion, rhythmic orchestra or auto play mode. It is also designed so that the fill-in does not continue the same pattern.
Memory operations of transpose, harmonic coupler, program chord computer, full-band setting computer, and voice setting computer are not possible.	Record button turns off making memory operation impossible unless a proper button is not depressed within 5sec. after depressing record button. • Select a proper button white indicator is blinking with record button depressed.
Data stored into voice setting computer, transpose, harmonic coupler, program chord computer, and full-band setting computer go out.	If the organ is left for more than one week with the power switch tuned off or the power cord disconnected after storing the data, the stored data will go out. • To keep data stored in the memory for a long period of time, switch on the organ once a week at least for more than 10min.
Tuning is deflected from the standard pitch.	If the pitch adjust button (–, +) is lighted with free set button ON, then turning is deflected from the standard pitch (440Hz). Tuning pitch changes about 0.3Hz each time the button is pushed. It changes in a range of 438Hz—446Hz. Also LED blinks at the upper and lower limits of the range. • To play with it returned to the standard pitch, turn off the free set button.

REGISTRATION FOR 20 COMBINATION VSC

20 combination VSC

Combinations of original tones and effects are preset in this unit. You can select the desired tones by the lower keyboard keys marked with 1—20, and store them by use of buttons I, II, III, IV, V, VI and VII of the voice setting computer.

are displayed by LED's on the control panel. The ∗-marked tones and effects are not displayed on the control panel.

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
1	Theater Organ	upper: tab voices	flute 16′, 8′, 4′, 2′, 1′		bass 16′, 8′	tremolo: U. tab L. tab sustain: upper
		lower: tab voices		flute 8′, 4′		
2	Church Organ	upper: tab voices	flute 16′, 8′, 4′, $2^{2}/_{3}'$, 2′, $1^{1}/_{3}'$, 1′ slow attack (16′, 8′)		bass 16′, 8′	chorus: U. tab L. tab celeste: U. tab
		lower: tab voices		flute 8′, 4′, 2′ ∗slow attack		
3	Pop Organ I	upper: tab voices	flute 16′, $2^{2}/_{3}'$ percussive tone $2^{2}/_{3}'$		bass 8′	chorus: U. tab celeste: L. tab
		lower: tab voices		flute 8′, 4′		
4	Pop Organ II	upper: tab voices	flute 16′, 4′ ∗decay percussive tone 4′		bass 16′, 8′	chorus: U. tab L. tab sustain: upper flute 4′
		lower: tab voices		flute 8′, 4′		
5	Rock Organ	upper: tab voices	flute 16′, 8′, $5^{1}/_{3}'$, 4′, $2^{2}/_{3}'$, 2′, $1^{1}/_{3}'$, 1′ percussive tone $2^{2}/_{3}'$, ∗$5^{2}/_{3}'$ harmonic coupler $2^{2}/_{3}'$		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
6	Jazz Organ	upper: tab voices	flute 16′, 8′, $5^{1}/_{3}'$ percussive tone $2^{2}/_{3}'$, ∗$5^{2}/_{3}'$, click...full		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
7	Classical Strings	upper: tab voices	flute 8′, string 8′ ...slow attack		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab sustain: bass (long)
		lower: tab voices		flute 8′, string 8′ ∗slow attack		
8	Classical Ensemble	upper: tab voices percussive presets	flute 8′, 4′, string 8′ ...slow attack harpsichord		bass 8′	chorus: U. tab L. tab celeste: U. tab L. tab
		lower: tab voices string ensemble		flute 8′ ∗slow attack string ensemble		
9	Pop Ensemble <I>	upper: tab voices percussive presets	flute 16′, 1′...slow attack acoustic piano...full		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′, 4′		
10	Pop Ensemble <II>	upper: solo presets string ensemble	pan flute...volume: loud string ensemble		bass 8′	chorus: L. tab
		lower: tab voices percussive presets string ensemble		flute 8′ harpsichord string ensemble		

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
11	Soft Brass	upper: orchestral presets solo presets	trombone...full trombone		acoustic bass	celeste: L. tab voices U. orchestral pre.
		lower: tab voices percussive presets		flute 8′ jazz guitar		
12	Big Band Brass	upper: orchestral presets solo presets	saxophone...full saxophone		acoustic bass	chorus: L. tab celeste: U. orchestral pre. U. solo presets
		lower: tab voices percussive presets		flute 8′ acoustic piano		
13	Marching Brass	upper: orchestral presets solo presets	trombone...full pan flute		tuba	chorus: L. tab celeste: U. orchestral pre. sustain: bass (short)
		lower: tab voices percussive presets		flute 8′ banjo		
14	Synthe Brass	upper: tab voices orchestral presets solo presets	flute 16′, 8′ wah brass...full saxophone...volume: soft		electric bass	chorus: U. tab L. tab celeste: U. solo presets
		lower: tab voices percussive presets		flute 8′ acoustic guitar		
15	Fusion Guitar	upper: percussive presets solo presets	jazz guitar...full synthe chopper ...volume: soft		electric bass	chorus: L. tab
		lower: tab voices		flute 8′, 4′		
16	New Wave	upper: tab voices orchestral presets solo presets	flute 16′ percussive tone 4′, click saxophone...full synthe chopper		electric bass	chorus: U. tab L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ jazz guitar		
17	Funk Rock	upper: orchestral presets solo presets	wah brass...full synthe chopper ...volume: soft		synthe bass	chorus: L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ acoustic piano		
18	Jazz·Guitar Combo	upper: tab voices percussive presets	flute 16′, 8′, $5\frac{1}{3}$′ upper volume...soft percussive tone $2\frac{2}{3}$′, click...full jazz guitar...full		acoustic bass	chorus: U. tab L. tab celeste: L. orchestral pre.
		lower: tab voices orchestral presets		flute 8′, 4′ trombone		
19	Mix Combo	upper: tab voices orchestral pre. solo presets	flute 16′, 4′ percussive tone 4′... long, full trombone...full pan flute		bass 16′, 8′	chorus: U. tab L. tab celeste: U. orchestral pre.
		lower: tab voices percussive presets		flute 8′, 4′ acoustic piano		
20	Ballade Sound	upper: tab voices percussive presets solo presets	flute 4′ harpsichord pan flute		bass 16′, 8′	chorus: U. tab L. tab
		lower: tab voices		flute 8′		

INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS

1. Important safety notice:

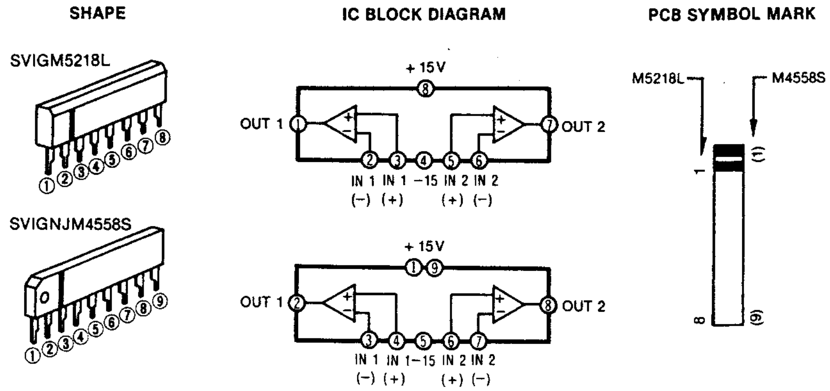
Components identified by △ mark have special characteristics for safety.
When replacing any of these components, use only manufacturer's specified parts.

2. Signal lines

➡ Sound source signal or Tone signal
⇨ Control signal
▨▷ Clock signal

3. Terminal No. of operational amplifier

In this model, operational amplifiers with different number of terminals as shown below are used together.
Those mentioned in the circuit diagram are based upon the terminal No. of SVIGM5218L. Therefore, when checking a P.C.B. using SVIGNJM4558S, note that the terminal No. are different from those in the circuit diagram.



4. Symbolic marks

The smbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as follows.

■ Resistors

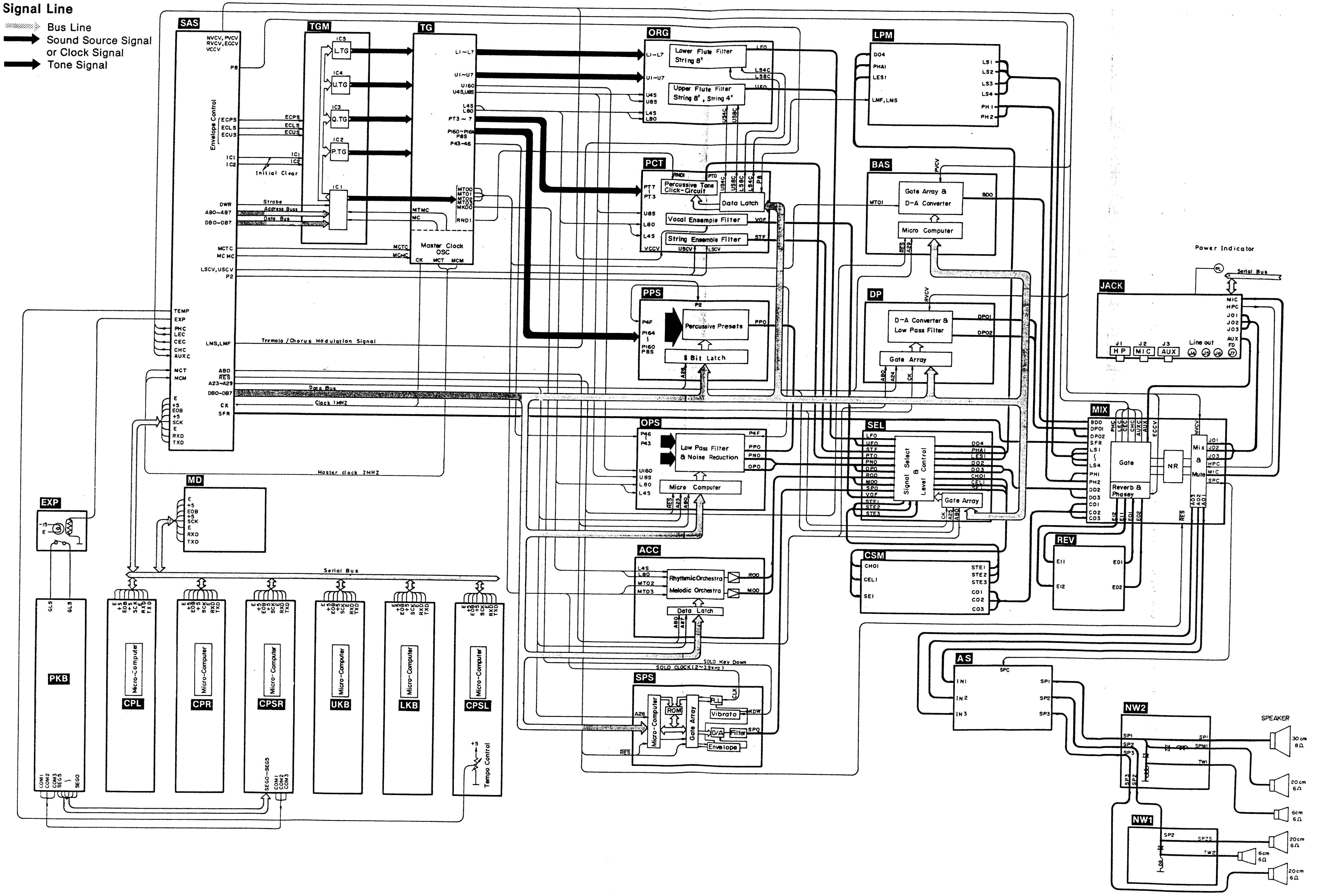
(1) Resistors without symbolic mark are FIXD CARBON FILM RESISTORS.
(2) All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
(3) Resistors with F symbolic mark are Flame-Proof resistors.
(4) All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ.

■ Capacitors

(1) Capacitors without symbolic mark are Polyester Film Capacitors (ECQM—type).
(2) Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type).
(3) Others
  (TF) : TF capacitor (ECQV—type).
  Ⓩ : Aluminum Electrolytic Capacitor, Ⓩ series Low impedance type (ECEA—Z—type).
  (MS) : Aluminum Electrolytic Capacitor, (MS) series Low leakage current type (ECEA—M—type).
  Ⓝ : Bi-Polarized Electrolytic Capacitor (ECEA—N—type), (ECEA—Y—type).
  ○ : Ceramic Capacitor (ECC—type), (ECK—type).
(4) All capacitors are microfarads unless otherwise specified in the schematic diagram.

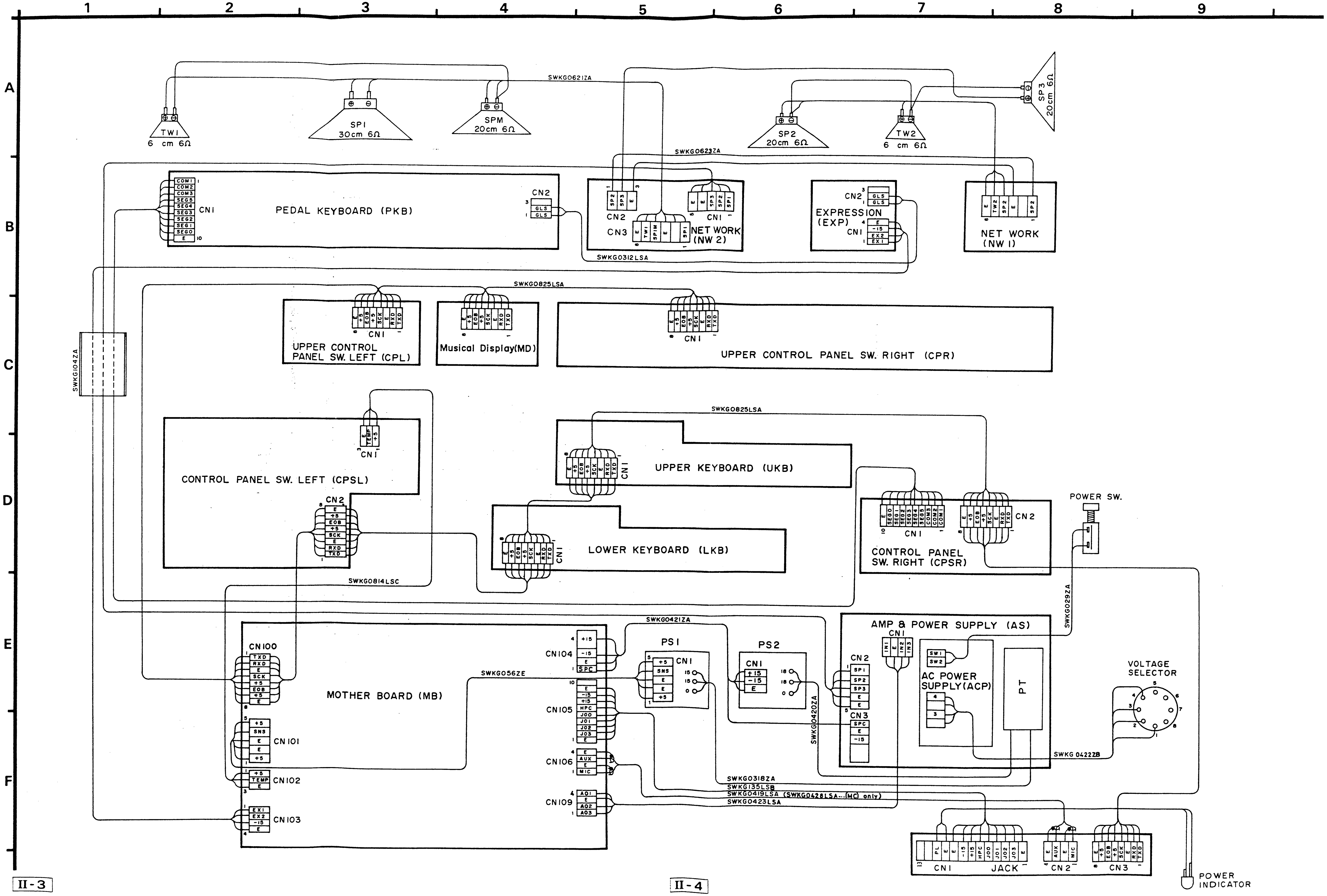
BLOCK DIAGRAM

■ Signal Line

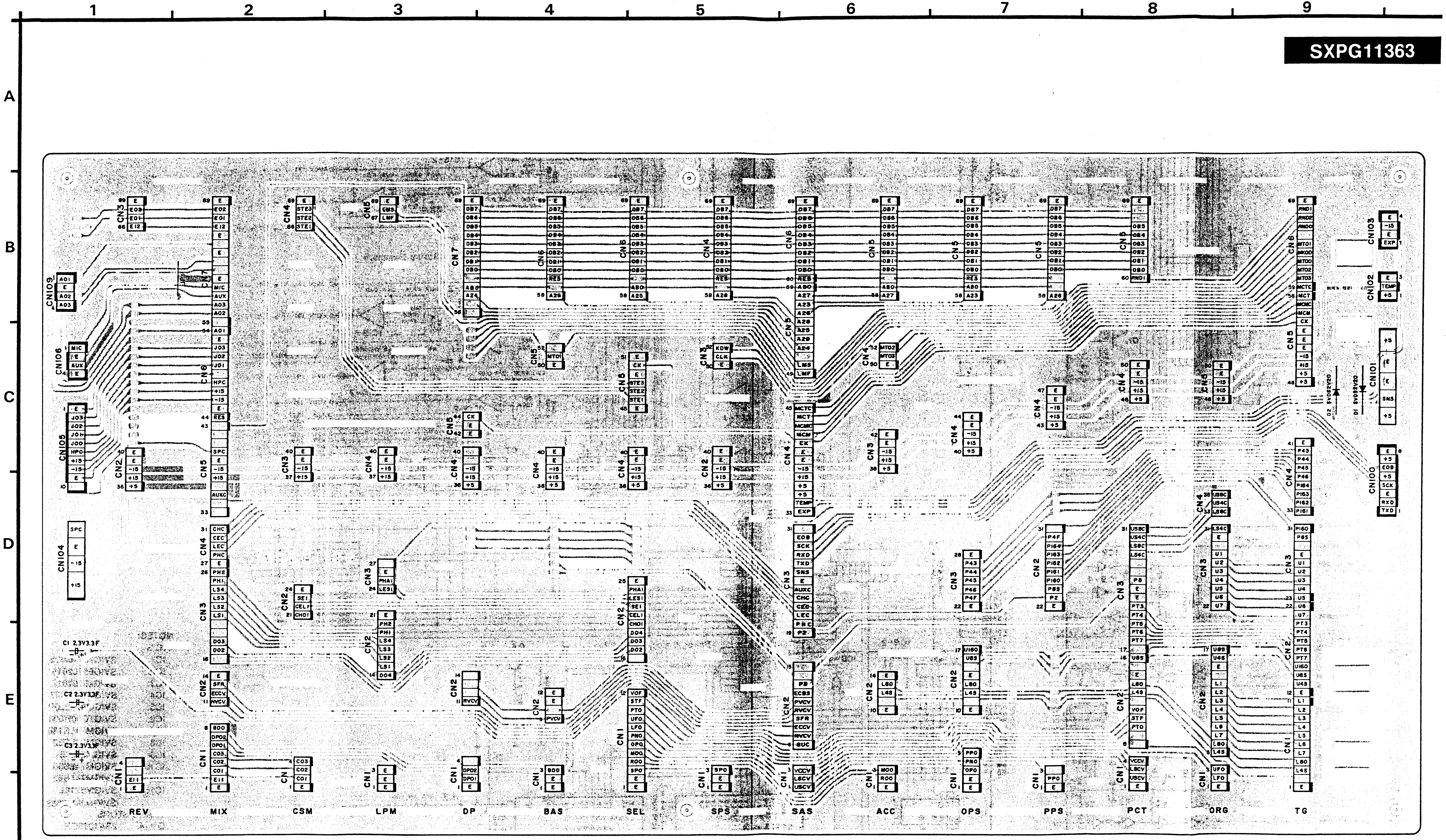


Bus Line
Sound Source Signal or Clock Signal
Tone Signal
SAS
NVCV, PVCV
RVCV, ECCV
VCCV
P8
Envelope Control
ECPS
ECLS
ECUS
IC1
IC2
Initial Clear
DWR
AB0~AB7
DB0~DB7
Strobe
Address Bus
Data Bus
MCTC
MCMC
LSCV, USCV
P2
TEMP
EXP
PHC
LEC
CEC
CHC
AUXC
LMS, LMF
Tremolo / Chorus Modulation Signal
MCT
MCM
AB0
RES
A23~A29
DB0~DB7
Data Bus
CK
Clock 1MHZ
SFR
E
+5
EOB
SCK
RXD
TXD
Master clock 2MHZ
TGM
IC5
L.TG
IC4
U.TG
IC3
Q.TG
IC2
P.TG
TG
L1~L7
U1~U7
U160
U4S, U8S
L4S
L80
PT3 ~ 7
P160~P164
P8S
P43~46
MTO0
MTO1
MTO2
MTO3
MKO0
MTMC
MC
RND1
Master Clock OSC
CK
MCT
MCM
ORG
Lower Flute Filter String 8'
Upper Flute Filter String 8', String 4'
LFO
LS4C
LS8C
UFO
US4C
US8C
PCT
RND1
PTO
Percussive Tone Click-Circuit
Data Latch
PT7
PT3
U8S
L80
L4S
VCCV
Vocal Ensemble Filter
VOF
String Ensemble Filter
STF
USCV
LSCV
PPS
P4F
P164
P160
P8S
Percussive Presets
PPO
8 Bit Latch
A25
OPS
P46
P43
P4F
Low Pass Filter & Noise Reduction
PPO
PNO
OPO
U160
U8S
L80
L4S
Micro Computer
RES
A23
A26
ACC
L4S
L80
MTO2
MTO3
Rhythmic Orchestra
Melodic Orchestra
ROO
MOO
Data Latch
AB0
AB7
SOLO Key Down
SOLO CLOCK (2~33kHz)
SPS
A28
RES
Micro-Computer
ROM
Gate Array
PLL
Vibrato
D/A
Filter
Envelope
CLK
KDW
SPO
LPM
DO4
PHA1
LES1
LMF, LMS
LS1
LS2
LS3
LS4
PH1
PH2
BAS
PVCV
MTO1
Gate Array & D-A Converter
BDO
Micro Computer
RES
A29
DP
RVCV
D-A Converter & Low Pass Filter
DPO1
DPO2
Gate Array
AB0
A24
CK
SEL
LFO
UFO
STF
PTO
PNO
OPO
ROO
MOO
SPO
VOF
STE1
STE2
STE3
Signal Select & Level Control
DO4
PHA1
LES1
DO2
DO3
CHO1
CEL1
SE1
Gate Array
CK
A25
AB0
CSM
CHO1
CEL1
SE1
STE1
STE2
STE3
CO1
CO2
CO3
Power Indicator
PL
Serial Bus
JACK
MIC
HPC
JO1
JO2
JO3
AUX
FD
J1
HP
J2
MIC
J3
AUX
Line out
J4
J5
J6
J7
MIX
BDO
DPO1
DPO2
SFR
LS1
LS4
PH1
PH2
DO2
DO3
CO1
CO2
CO3
PHC
LEC
CEC
CHC
AUXC
ECCV
NVCV
Gate
NR
Reverb & Phaser
Mix & Mute
JO1
JO2
JO3
HPC
MIC
SPC
EI2
EI1
EO1
EO2
RES
AO3
AO2
AO1
REV
EI1
EO1
EI2
EO2
AS
SPC
IN1
IN2
IN3
SP1
SP2
SP3
NW2
SP1
SP2
SP3
SP1
SPM1
TW1
NW1
SP2
SP2S
TW2
SPEAKER
30cm 8Ω
20cm 6Ω
6cm 6Ω
20cm 6Ω
6cm 6Ω
20cm 6Ω
EXP
-15
E
MD
Serial Bus
GLS
PKB
COM1
COM2
COM3
SEG5
SEG0
CPL
CPR
CPSR
SEG0~SEG5
UKB
LKB
CPSL
Micro-Computer
+5
Tempo Control

WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TW1
6 cm 6Ω
SP1
30cm 6Ω
SPM
20cm 6Ω
SWKG0621ZA
SP2
20cm 6Ω
TW2
6 cm 6Ω
SP3
20cm 6Ω
SWKG0623ZA
PEDAL KEYBOARD (PKB)
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
CN2
GLS
GLS
CN2
CN3
NET WORK
(NW 2)
TW1
SPIM
SP1
SP3
SP2
SWKG0312LSA
EXPRESSION
(EXP)
EX2
EX1
-15
NET WORK
(NW 1)
SWKG0825LSA
UPPER CONTROL
PANEL SW. LEFT (CPL)
Musical Display(MD)
UPPER CONTROL PANEL SW. RIGHT (CPR)
+5
EOB
SCK
RXD
TXD
SWKG104ZA
CONTROL PANEL SW. LEFT (CPSL)
TEMP
SWKG0825LSA
UPPER KEYBOARD (UKB)
LOWER KEYBOARD (LKB)
CONTROL PANEL
SW. RIGHT (CPSR)
POWER SW.
SWKG0814LSC
SWKG0421ZA
SWKG0292A
AMP & POWER SUPPLY (AS)
IN1
IN2
IN3
SW1
SW2
AC POWER
SUPPLY(ACP)
PT
VOLTAGE
SELECTOR
SWKG0422ZB
MOTHER BOARD (MB)
SWKG056ZE
CN100
CN101
SNS
CN102
CN103
CN104
+15
SPC
CN105
HPC
J00
J01
J02
J03
CN106
AUX
MIC
CN109
A01
A02
A03
PS1
PS2
SWKG0420ZA
SWKG0318ZA
SWKG135LSB
SWKG0419LSA (SWKG0428LSA...(MC) only)
SWKG0423LSA
CN1
JACK
CN2
CN3
PL
POWER
INDICATOR

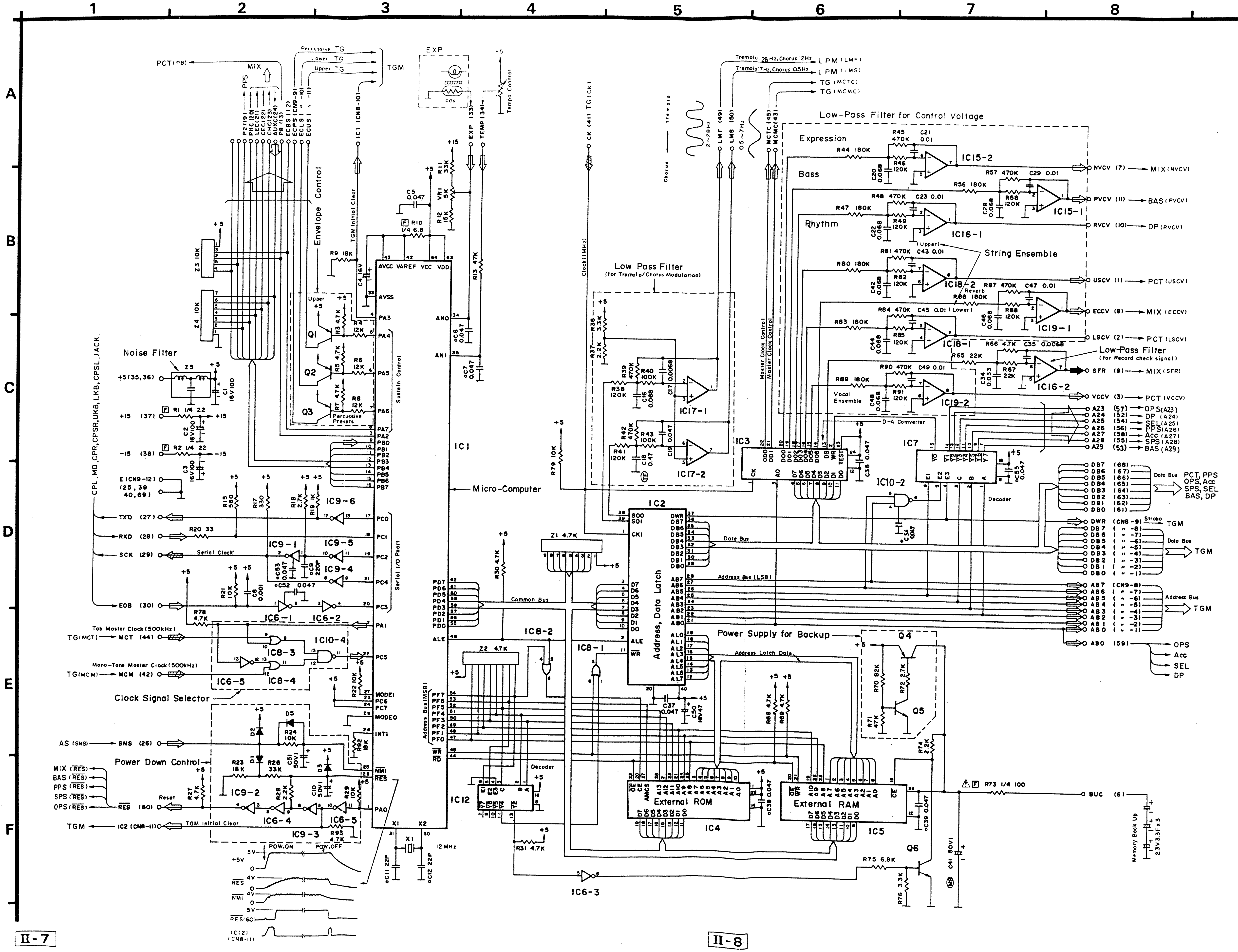
MOTHER CIRCUIT BOARD (MB)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
SXPG11363
CN109
CN106
CN105
CN104
CN103
CN102
CN101
CN100
D1 SVDS2V20
D2 SVDS2V20
C1 2.3V3.3F
C2 2.3V3.3F
C3 2.3V3.3F
REV
MIX
CSM
LPM
DP
BAS
SEL
SPS
SAS
ACC
OPS
PPS
PCT
ORG
TG

F

NOTES:
- DIODES
  D1, 2: SVDS2V20

SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PCT(P8)
MIX
Percussive TG
Lower TG
Upper TG
TGM
EXP
cds
Tempo Control
EXP (33)
TEMP (34)
IC1 (CN8-10)
TGM Initial Clear
Envelope Control
Noise Filter
+5(35,36)
+15 (37)
-15 (38)
E (CN9-12) (25,39 40,69)
TXD (27)
RXD (28)
SCK (29)
Serial Clock
EOB (30)
Tab Master Clock(500kHz)
TG(MCT) MCT (44)
Mono-Tone Master Clock(500kHz)
TG(MCM) MCM (42)
Clock Signal Selector
AS (SNS) SNS (26)
Power Down Control
MIX (RES)
BAS (RES)
PPS (RES)
SPS (RES)
OPS (RES)
RES (60)
Reset
TGM IC2 (CN8-11)
TGM Initial Clear
POW.ON
POW.OFF
Q1
Q2
Q3
Percussive Presets
Sustain Control
Serial I/O Port
IC1
Micro-Computer
Common Bus
X1
12 MHz
IC12
Decoder
IC6-3
Clock (1MHz)
CK (41) TG(CK)
Low Pass Filter (for Tremolo/Chorus Modulation)
IC17-1
IC17-2
Tremolo 28Hz, Chorus 2Hz
Tremolo 7Hz, Chorus 0.5Hz
LPM (LMF)
LPM (LMS)
TG (MCTC)
TG (MCMC)
LMF (49)
LMS (50)
MCTC (45)
MCMC (43)
Master Clock Control
Master Clock Control
IC2
Address, Data Latch
Data Bus
Address Bus (LSB)
Address Latch Data
Power Supply for Backup
Q4
Q5
Q6
External ROM
IC4
External RAM
IC5
Memory Back Up
BUC (6)
IC3
D-A Converter
IC7
IC10-2
Low-Pass Filter for Control Voltage
Expression
Bass
Rhythm
String Ensemble
(Upper)
(Lower)
Reverb
Vocal Ensemble
IC15-2
IC15-1
IC16-1
IC18-2
IC19-1
IC18-1
IC16-2
IC19-2
Low-Pass Filter (for Record check signal)
NVCV (7) → MIX (NVCV)
PVCV (11) → BAS (PVCV)
RVCV (10) → DP (RVCV)
USCV (1) → PCT (USCV)
ECCV (8) → MIX (ECCV)
LSCV (2) → PCT (LSCV)
SFR (9) → MIX (SFR)
VCCV (3) → PCT (VCCV)
A23 (57) → OPS(A23)
A24 (52) → DP (A24)
A25 (54) → SEL(A25)
A26 (56) → PPS(A26)
A27 (58) → Acc (A27)
A28 (55) → SPS (A28)
A29 (53) → BAS (A29)
Data Bus PCT, PPS OPS, Acc SPS, SEL BAS, DP
DWR (CN8-9) Strobe TGM
Data Bus TGM
Address Bus TGM
AB0 (59) OPS Acc SEL DP

NOTES:

- IC'S

IC1:	SVIG7811G028
IC2:	SVIG65002014
IC3:	SVIG65002017
IC4:	SVIG3256PC37
IC5:	SVIGM512820R
IC6:	SVIGTC40H004
IC7, 12:	SVIGM74LS138
IC8:	SVIGM74LS32
IC9:	SVIGM53216
IC10:	SVIGM74LS00
IC11:	SVIGM74LS02
IC15~19:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

Q1~4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1~5:	MA165TA5VT

- COMPONENTS COMBINATIONS

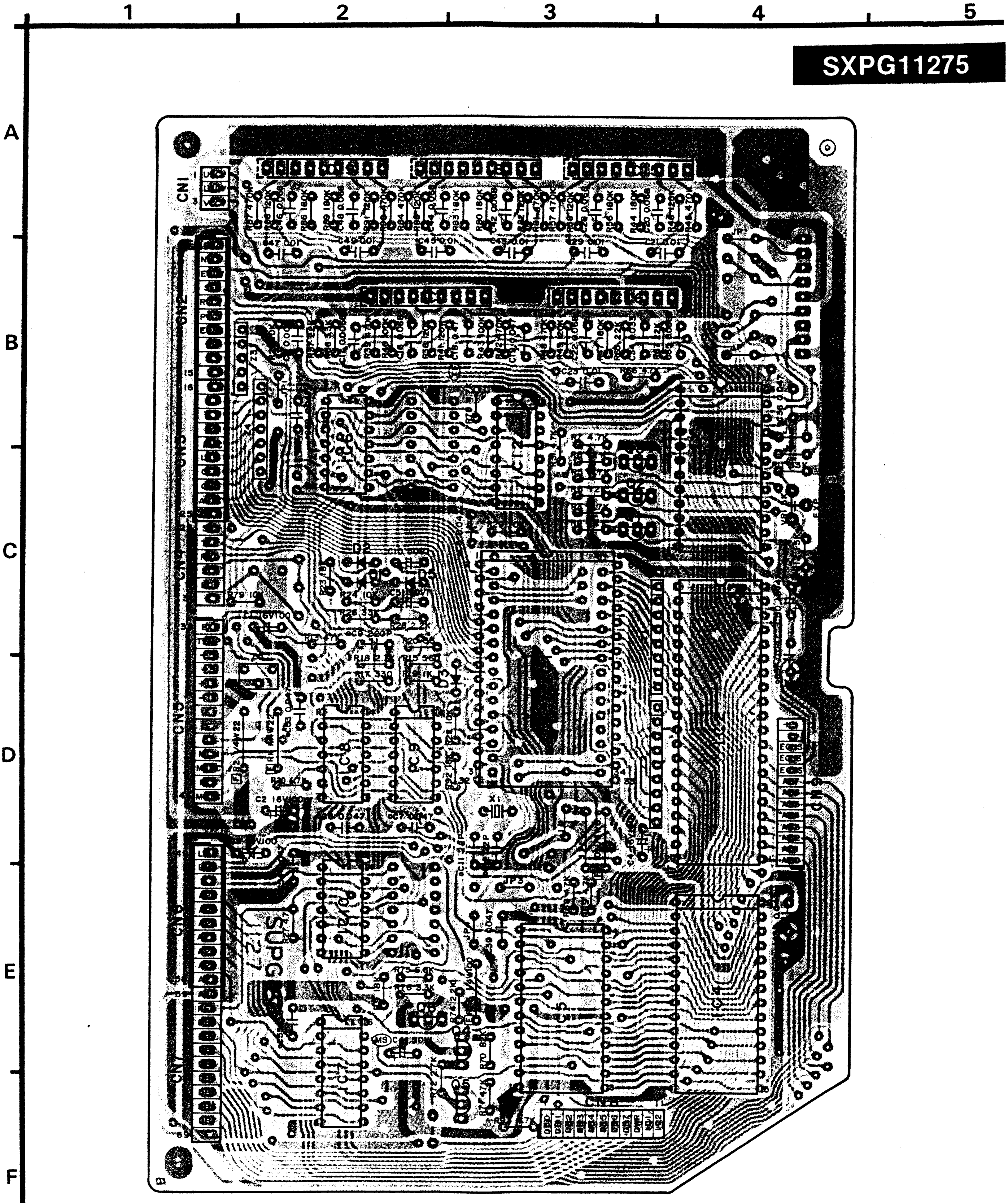
Z1, 2:	EXBP88472MM
Z3:	EXBP84103MM
Z4:	EXBP86103MM
Z5:	EXATA223S

- CERAMIC OSCILLATOR

X1:	SVQG43U1200A

SYSTEM ASSIGNER CIRCUIT BOARD (SAS)

SXPG11275



NOTES:

- IC'S

IC1:	SVIG7811G028	IC7, 12:	SVIGM74LS138
IC2:	SVIG65002014	IC8:	SVIGM74LS32
IC3:	SVIG65002017	IC9:	SVIGM53216
IC4:	SVIG3256PC37	IC10:	SVIGM74LS00
IC5:	SVIGM512820R	IC11:	SVIGM74LS02
IC6:	SVIGTC40H004	IC15~19:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

Q1~4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1~5:	MA165TA5VT

- COMPONENTS COMBINATIONS

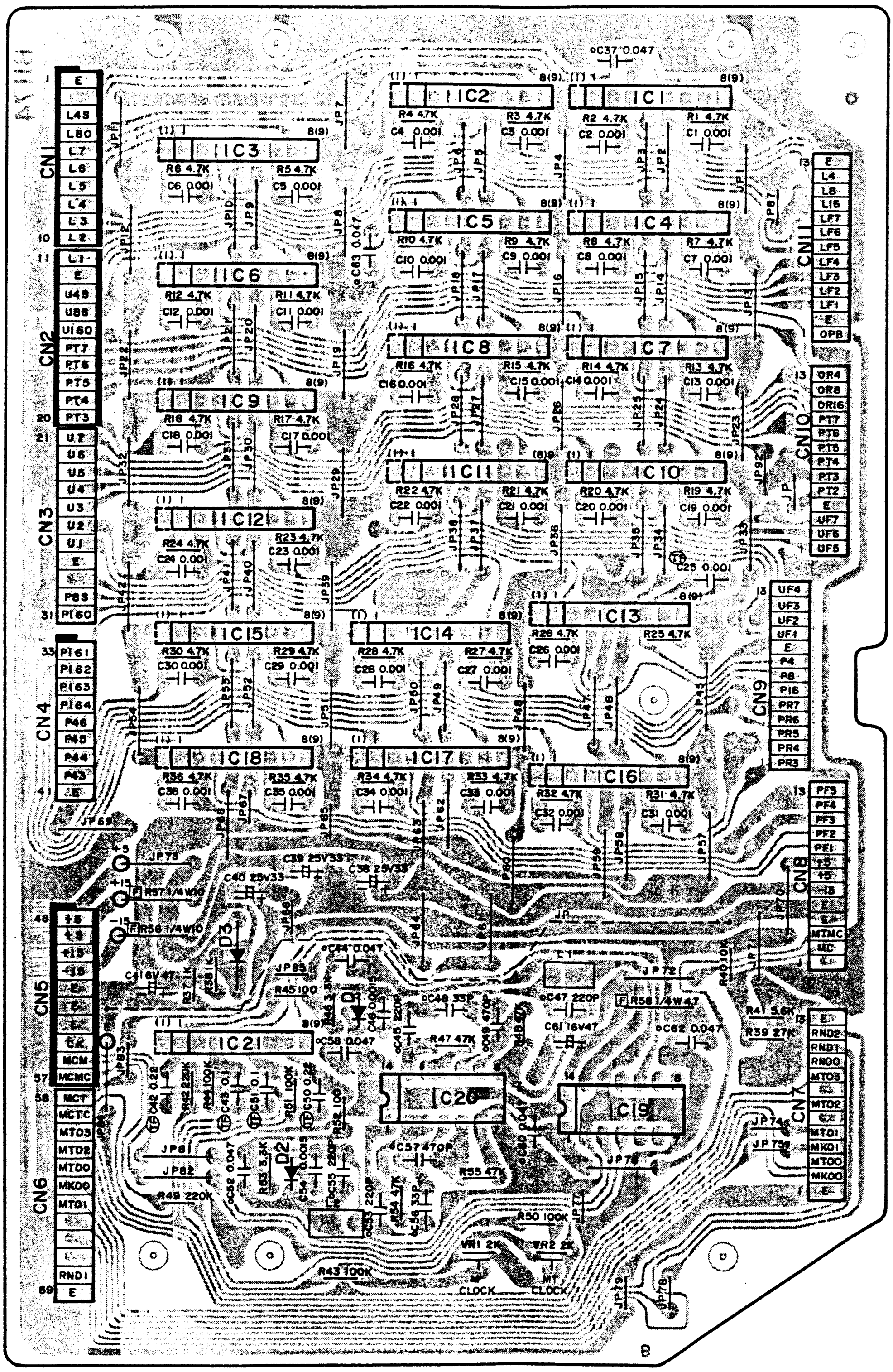
Z1, 2:	EXBP88472MM
Z3:	EXBP84103MM
Z4:	EXBP86103MM
Z5:	EXATA223S

- CERAMIC OSCILLATOR

X1:	SVQG43U1200A

TONE GENERATOR CIRCUIT BOARD (TG)

SXPGB11741


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
D1
D2
D3
VR1 2K
VR2 2K
CLOCK
CLOCK
C37 0.047
C39 25V33
C40 25V33
C38 25V33
C41 6V47
C61 16V47
R57 1/4W10
R56 1/4W10
R58 1/4W47
R45 100
R41 5.6K
R39 27K
R43 100K
R49 220K
R50 100K
R55 47K
R47 47K
+5
+15
-15
B

NOTES:

- IC'S

IC1~18, 21: SVIGM5218L
(SVIGNJM4558S)
IC19: SVIGTC40H393
IC20: SVIGTC40H004

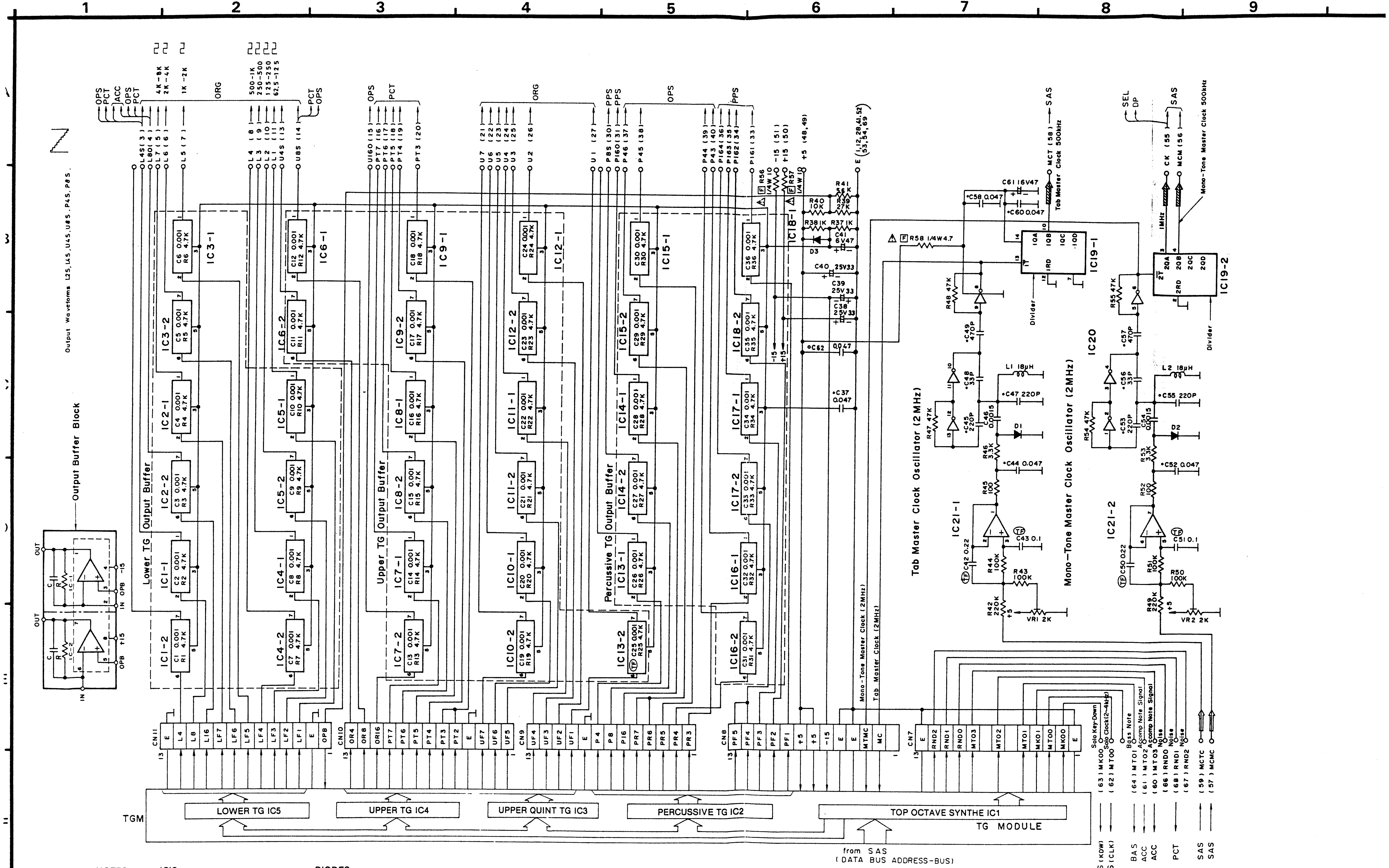
- DIODES

D1, 2: MA165TA5VT
D3: SVDGSM1A02LF

- COILS

L1, 2: ELQS180KB

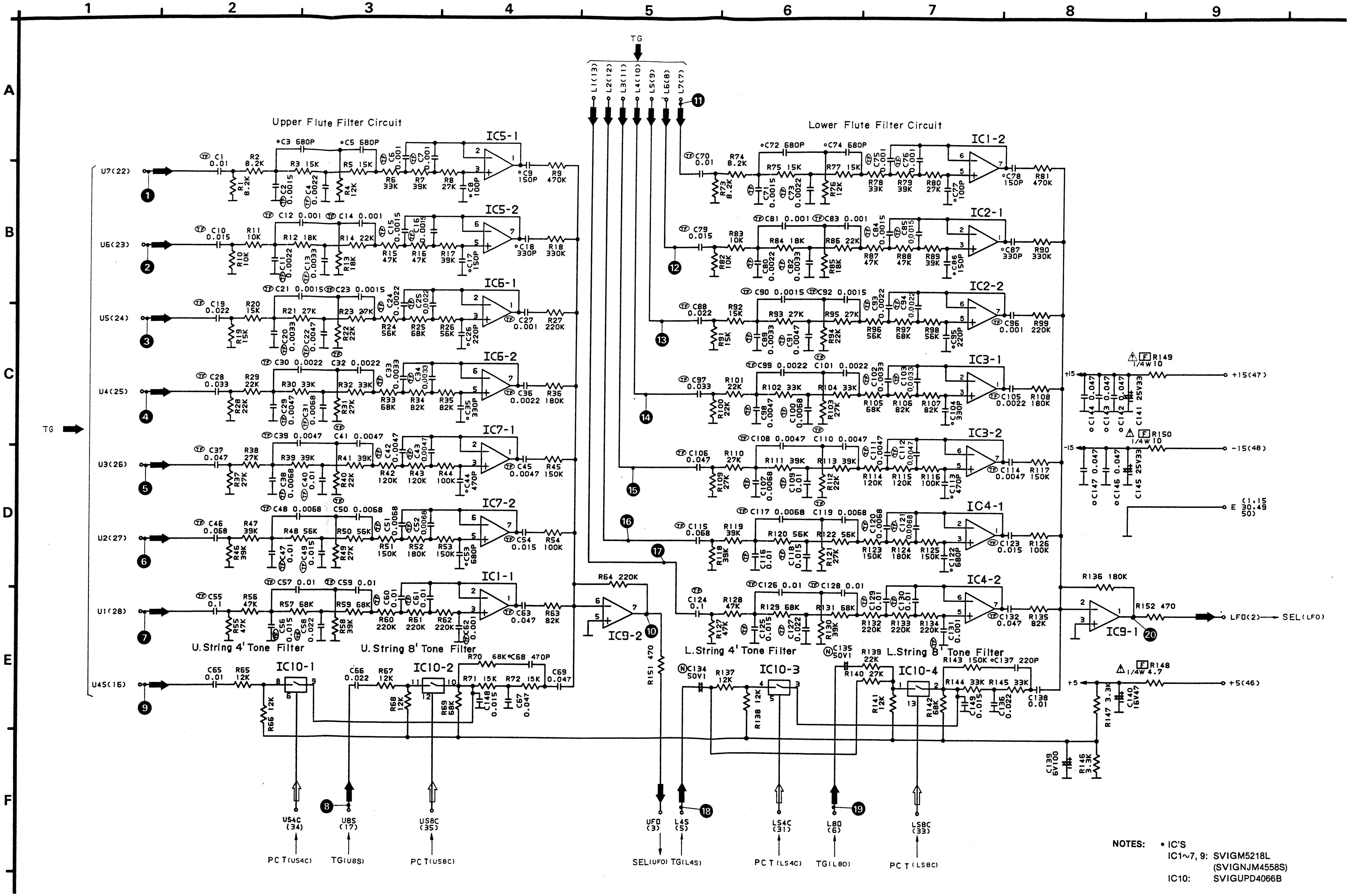
TONE GENERATOR CIRCUIT DIAGRAM (TG)


1
2
3
4
5
6
7
8
9
Output Waveforms L2S, L4S, U4S, U8S, P4S, P8S.
Output Buffer Block
Lower TG Output Buffer
Upper TG Output Buffer
Percussive TG Output Buffer
IC1-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC8-1
IC8-2
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC14-1
IC14-2
IC15-1
IC15-2
IC16-1
IC16-2
IC17-1
IC17-2
IC18-1
IC18-2
IC19-1
IC19-2
IC20
IC21-1
IC21-2
OPS
PCT
ACC
ORG
PPS
SAS
SEL
DP
Tab Master Clock Oscillator (2MHz)
Mono-Tone Master Clock Oscillator (2MHz)
Tab Master Clock 500kHz
Mono-Tone Master Clock 500kHz
Mono-Tone Master Clock (2MHz)
Tab Master Clock (2MHz)
Divider
1MHz
VR1 2K
VR2 2K
L1 18μH
L2 18μH
CN11
CN10
CN9
CN8
CN7
TGM
LOWER TG IC5
UPPER TG IC4
UPPER QUINT TG IC3
PERCUSSIVE TG IC2
TOP OCTAVE SYNTHE IC1
TG MODULE
from SAS
(DATA BUS ADDRESS-BUS)
Solo Key-Down
Solo Clock (2~4kHz)
Bass Note
Accomp Note Signal
Noise
SPS (KDW)
SPS (CLK)
BAS
ACC
PCT
SAS

NOTES:

- IC'S
  - IC1~18, 21: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

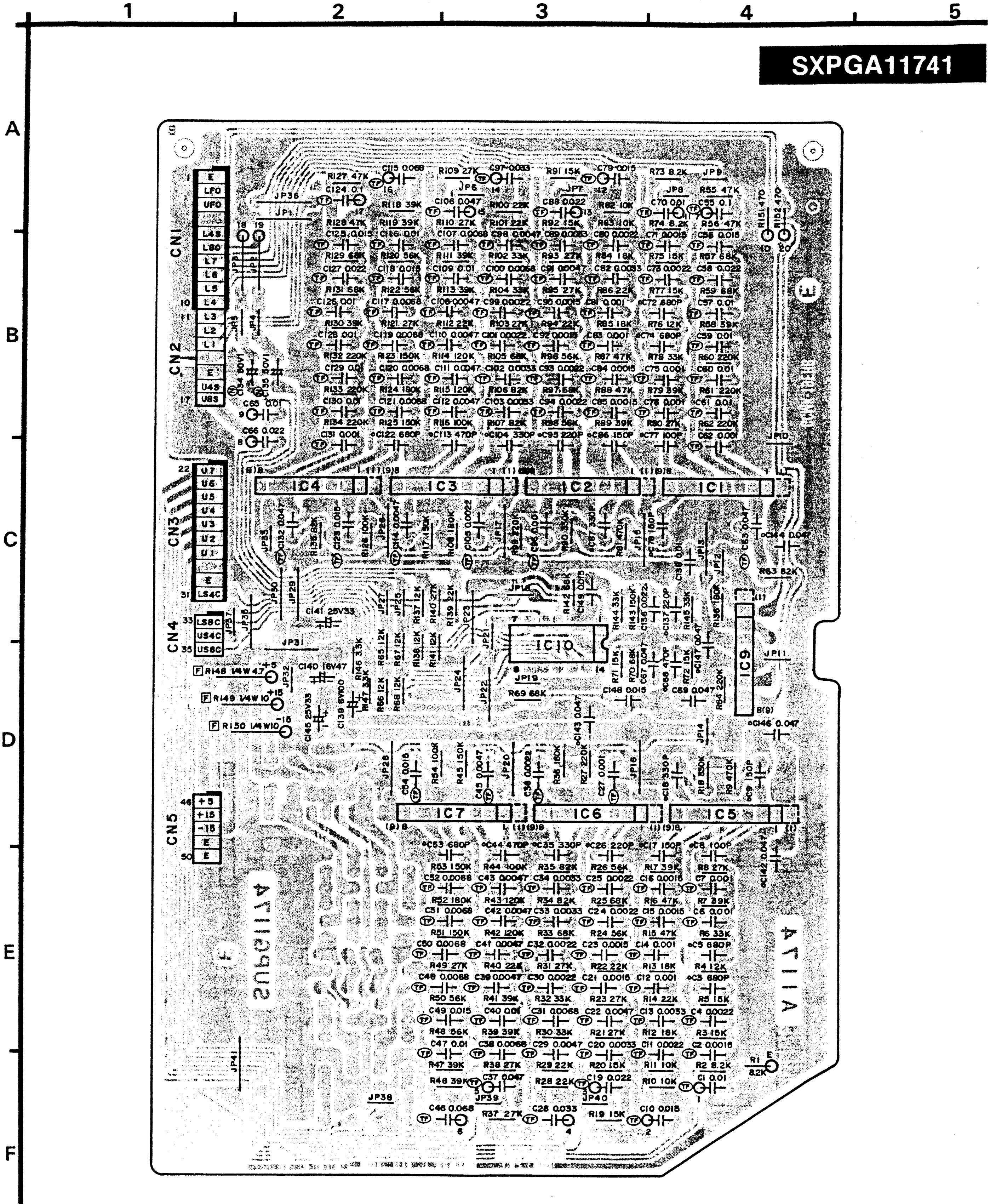
ORGAN CIRCUIT DIAGRAM (ORG)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TG
L1(13)
L2(12)
L3(11)
L4(10)
L5(9)
L6(8)
L7(7)
Upper Flute Filter Circuit
Lower Flute Filter Circuit
U7(22)
U6(23)
U5(24)
U4(25)
U3(26)
U2(27)
U1(28)
U4S(16)
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC1-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC9-1
IC9-2
IC10-1
IC10-2
IC10-3
IC10-4
U.String 4' Tone Filter
U.String 8' Tone Filter
L.String 4' Tone Filter
L.String 8' Tone Filter
R64 220K
R136 180K
R152 470
R151 470
LFO(2)—— SEL(LFO)
+15(47)
-15(48)
E (1,15 30,49 50)
+5(46)
R149 1/4W 10
R150 1/4W 10
R148 1/4W 4.7
US4C (34)
U8S (17)
US8C (35)
UFO (3)
L4S (5)
LS4C (31)
L8O (6)
LS8C (33)
PC T(US4C)
TG(U8S)
PC T(US8C)
SEL(UFO)
TG(L4S)
PC T(LS4C)
TG(L8O)
PC T(LS8C)

NOTES: • IC'S
IC1~7, 9: SVIGM5218L
(SVIGNJM4558S)
IC10: SVIGUPD4066B

ORGAN CIRCUIT BOARD (ORG)

SXPGA11741


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC10
R148 1/4W 4.7
R149 1/4W 10
R150 1/4W 10
+5
+15
-15

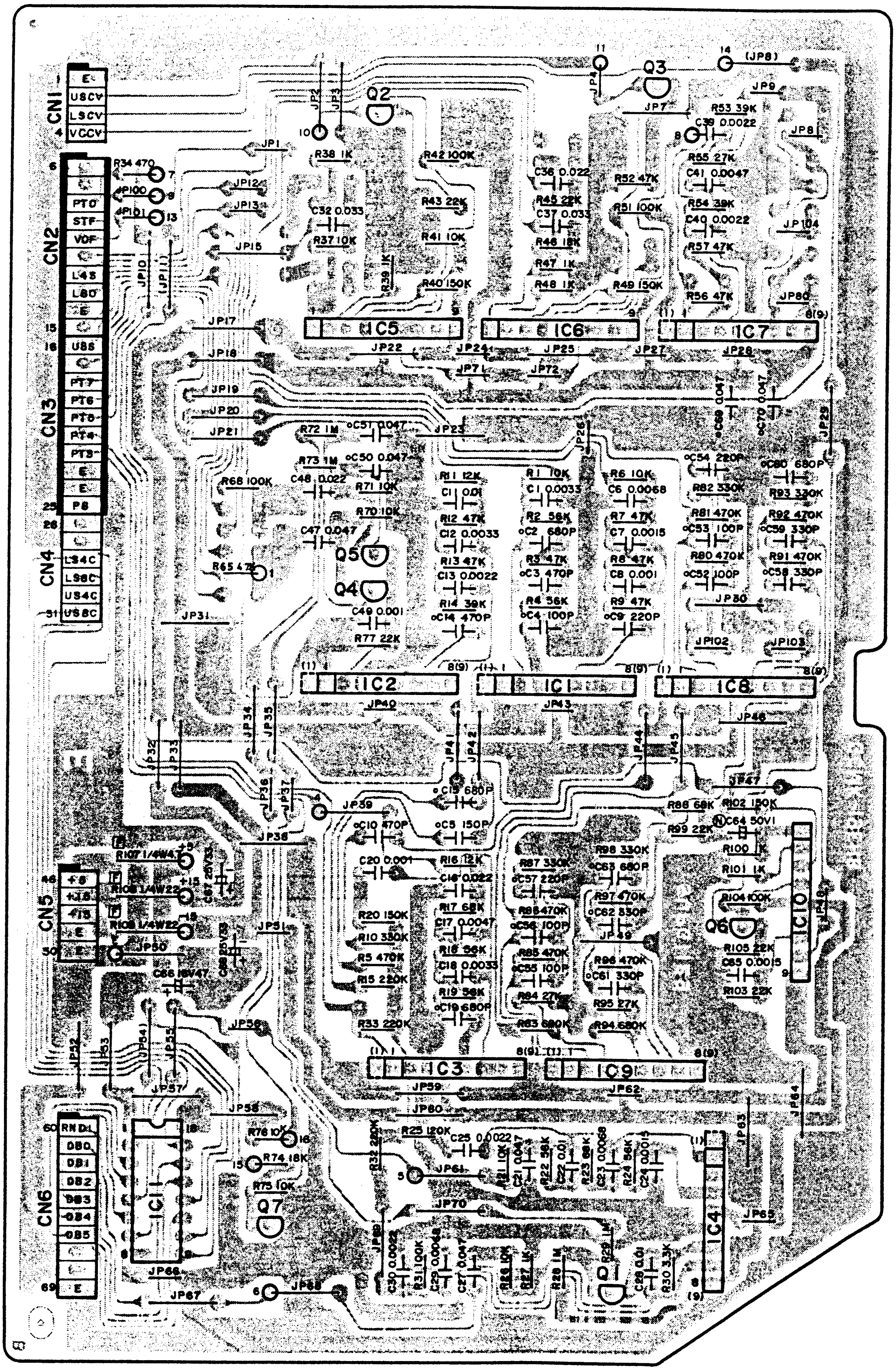
NOTES:

- IC'S

IC1~7, 9: SVIGM5218L
(SVIGNJM4558S)
IC10: SVIGUPD4066B

PERCUSSIVE TONE CIRCUIT BOARD (PCT)

SXPG11292


1
2
3
4
5
A
B
C
D
E
F
CN1
E
USCV
LSCV
VCCV
CN2
PTO
STF
VOF
L48
L80
U88
CN3
PT7
PT6
PT5
PT4
PT3
P8
CN4
LS4C
LS8C
US4C
US8C
CN5
+9
+18
-15
E
CN6
RND
DB0
DB1
DB2
DB3
DB4
DB5
E
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
Q2
Q3
Q4
Q5
Q6
Q7
JP1
JP2
JP3
JP4
JP7
JP8
JP9
JP10
JP11
JP12
JP13
JP15
JP17
JP18
JP19
JP20
JP21
JP22
JP23
JP24
JP25
JP26
JP27
JP28
JP29
JP30
JP31
JP32
JP33
JP34
JP35
JP36
JP37
JP38
JP39
JP40
JP41
JP42
JP43
JP44
JP45
JP46
JP47
JP48
JP49
JP50
JP51
JP52
JP53
JP54
JP55
JP56
JP57
JP58
JP59
JP60
JP61
JP62
JP63
JP64
JP65
JP66
JP67
JP68
JP69
JP70
JP71
JP72
JP80
JP100
JP101
JP102
JP103
JP104
R34 470
R38 1K
R42 100K
R43 22K
R41 10K
R40 150K
R39 1K
R37 10K
C32 0.033
C36 0.022
R45 22K
C37 0.033
R46 18K
R47 1K
R48 1K
R52 47K
R51 100K
R49 150K
R53 39K
C39 0.0022
R55 27K
C41 0.0047
R54 39K
C40 0.0022
R57 47K
R56 47K
C68 0.047
C70 0.047
R72 1M
C51 0.047
R73 1M
C50 0.047
R68 100K
C48 0.022
R71 10K
R70 10K
C47 0.047
R65 47K
C49 0.001
R77 22K
R11 12K
C11 0.01
R12 47K
C12 0.0033
R13 47K
C13 0.0022
R14 39K
C14 470P
R1 10K
C1 0.0033
R2 56K
C2 680P
R3 47K
C3 470P
R4 56K
C4 100P
R6 10K
C6 0.0068
R7 47K
C7 0.0015
R8 47K
C8 0.001
R9 47K
C9 220P
C54 220P
C60 680P
R82 330K
R93 330K
R81 470K
R92 470K
C53 100P
C59 330P
R80 470K
R91 470K
C52 100P
C58 330P
C15 680P
C10 470P
C5 150P
R88 68K
R102 150K
R99 22K
C64 50V1
R100 1K
R101 1K
R104 100K
R105 22K
C65 0.0015
R103 22K
R107 1/4W47
R108 1/4W22
R109 1/4W22
C67 25V33
C66 16V47
C68 25V33
C20 0.001
R16 12K
C16 0.022
R17 68K
C17 0.0047
R18 56K
C18 0.0033
R19 56K
C19 680P
R20 150K
R10 330K
R5 470K
R15 220K
R33 220K
R87 330K
C57 220P
R86 470K
C56 100P
R85 470K
C55 100P
R84 27K
R83 680K
R98 330K
C63 680P
R97 470K
C62 330P
R96 470K
C61 330P
R95 27K
R94 680K
R76 10K
R74 18K
R75 10K
R25 120K
C25 0.0022
R32 220K
R21 10K
C21 0.047
R22 56K
C22 0.01
R23 68K
C23 0.0068
R24 56K
C24 0.015
C30 0.0022
R31 100K
C29 0.0068
C27 0.047
R26 10K
R27 1K
R28 1M
R29 1M
C28 0.01
R30 3.3K
Q1

NOTES:

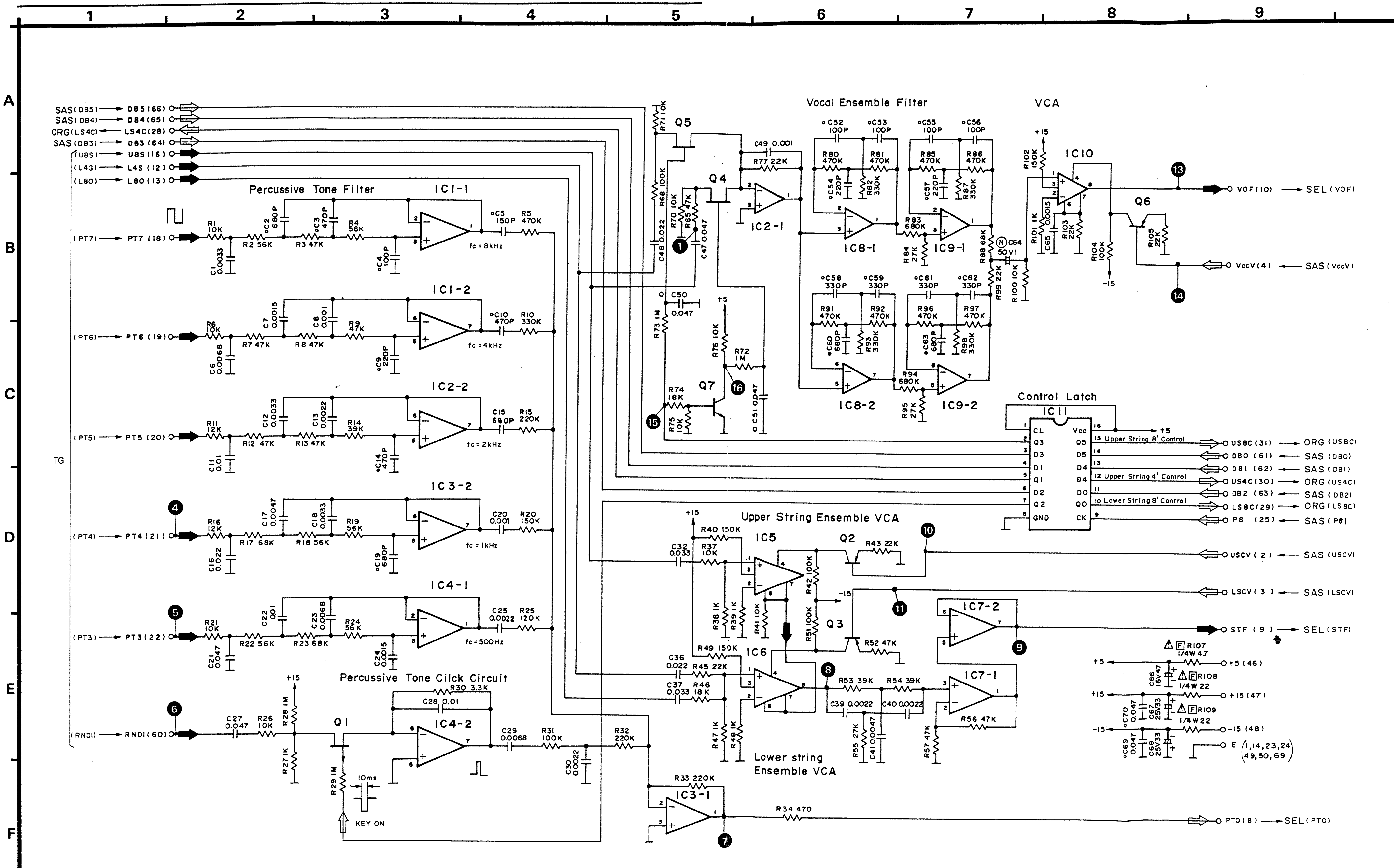
- IC'S

IC1~4, 7~9:	SVIGM5218L (SVIGNJM4558S)
IC5, 6, 10:	SVIGBA6110
IC11:	SVIGTC40174B

- TRANSISTORS

Q1, 4, 5:	2SJ40CD
Q2, 3, 6:	2SA1015GR
Q7:	2SC2320LFG

PERCUSSIVE TONE CIRCUIT DIAGRAM (PCT)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SAS(DB5) → DB5(66)
SAS(DB4) → DB4(65)
ORG(LS4C) ← LS4C(28)
SAS(DB3) → DB3(64)
(U8S) → U8S(16)
(L43) → L4S(12)
(L80) → L80(13)
TG
Percussive Tone Filter
IC1-1
(PT7) → PT7(18)
R1 10K
C1 0.0033
R2 56K
C2 680P
R3 47K
C3 470P
R4 56K
C4 100P
C5 150P
R5 470K
fc = 8kHz
IC1-2
(PT6) → PT6(19)
R6 10K
C6 0.0068
R7 47K
C7 0.0015
R8 47K
C8 0.001
R9 47K
C9 220P
C10 470P
R10 330K
fc = 4kHz
IC2-2
(PT5) → PT5(20)
R11 12K
C11 0.01
R12 47K
C12 0.0033
R13 47K
C13 0.0022
R14 39K
C14 470P
C15 680P
R15 220K
fc = 2kHz
IC3-2
(PT4) → PT4(21)
R16 12K
C16 0.022
R17 68K
C17 0.0047
R18 56K
C18 0.0033
R19 56K
C19 680P
C20 0.001
R20 150K
fc = 1kHz
IC4-1
(PT3) → PT3(22)
R21 10K
C21 0.047
R22 56K
C22 0.01
R23 68K
C23 0.0068
R24 56K
C24 0.0015
C25 0.0022
R25 120K
fc = 500Hz
Percussive Tone Cilck Circuit
(RND1) → RND1(60)
C27 0.047
R26 10K
+15
R28 1M
R27 1K
Q1
R29 1M
10ms
KEY ON
R30 3.3K
C28 0.01
IC4-2
C29 0.0068
R31 100K
C30 0.0022
R32 220K
R33 220K
IC3-1
R34 470
PTO(8) → SEL(PTO)
R71 10K
Q5
R68 100K
C48 0.022
R70 10K
R65 47K
C47 0.047
Q4
C49 0.001
R77 22K
IC2-1
C50 0.047
R73 1M
R76 10K
+5
R72 1M
C51 0.047
R74 18K
R75 10K
Q7
Vocal Ensemble Filter
C52 100P
C53 100P
R80 470K
R81 470K
C54 220P
R82 330K
IC8-1
C55 100P
C56 100P
R85 470K
R86 470K
C57 220P
R87 330K
R83 680K
R84 27K
IC9-1
R88 68K
C64 50V1
R99 22K
R100 10K
C58 330P
C59 330P
R91 470K
R92 470K
C60 680P
R93 330K
IC8-2
C61 330P
C62 330P
R96 470K
R97 470K
C63 680P
R98 330K
R94 680K
R95 27K
IC9-2
VCA
+15
R102 150K
IC10
R101 1K
C65 0.0015
R103 22K
R104 100K
-15
Q6
R105 22K
VOF(10) → SEL(VOF)
VccV(4) ← SAS(VccV)
Control Latch
IC11
CL
Q3
D3
D1
Q1
D2
Q2
GND
Vcc
Q5
D5
D4
Q4
D0
Q0
CK
+5
15 Upper String 8' Control
12 Upper String 4' Control
10 Lower String 8' Control
USBC(31) → ORG(USBC)
DB0(61) ← SAS(DB0)
DB1(62) ← SAS(DB1)
US4C(30) → ORG(US4C)
DB2(63) ← SAS(DB2)
LS8C(29) → ORG(LS8C)
P8 (25) ← SAS(P8)
Upper String Ensemble VCA
+15
R40 150K
C32 0.033
R37 10K
IC5
R38 1K
R39 1K
R41 10K
R42 100K
Q2
R43 22K
USCV(2) ← SAS(USCV)
-15
LSCV(3) ← SAS(LSCV)
R51 100K
Q3
R52 47K
IC7-2
STF(9) → SEL(STF)
R49 150K
C36 0.022
R45 22K
IC6
C37 0.033
R46 18K
R47 1K
R48 1K
Lower string Ensemble VCA
R53 39K
R54 39K
C39 0.0022
C40 0.0022
R55 27K
C41 0.0047
IC7-1
R56 47K
R57 47K
⚠ F R107 1/4W 4.7
+5 (46)
C66 16V47
⚠ F R108 1/4W 22
+15 (47)
C70 0.047
C67 25V33
⚠ F R109 1/4W 22
-15 (48)
C69 0.047
C68 25V33
E (1,14,23,24 49,50,69)
①
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑬
⑭
⑮
⑯

NOTES:

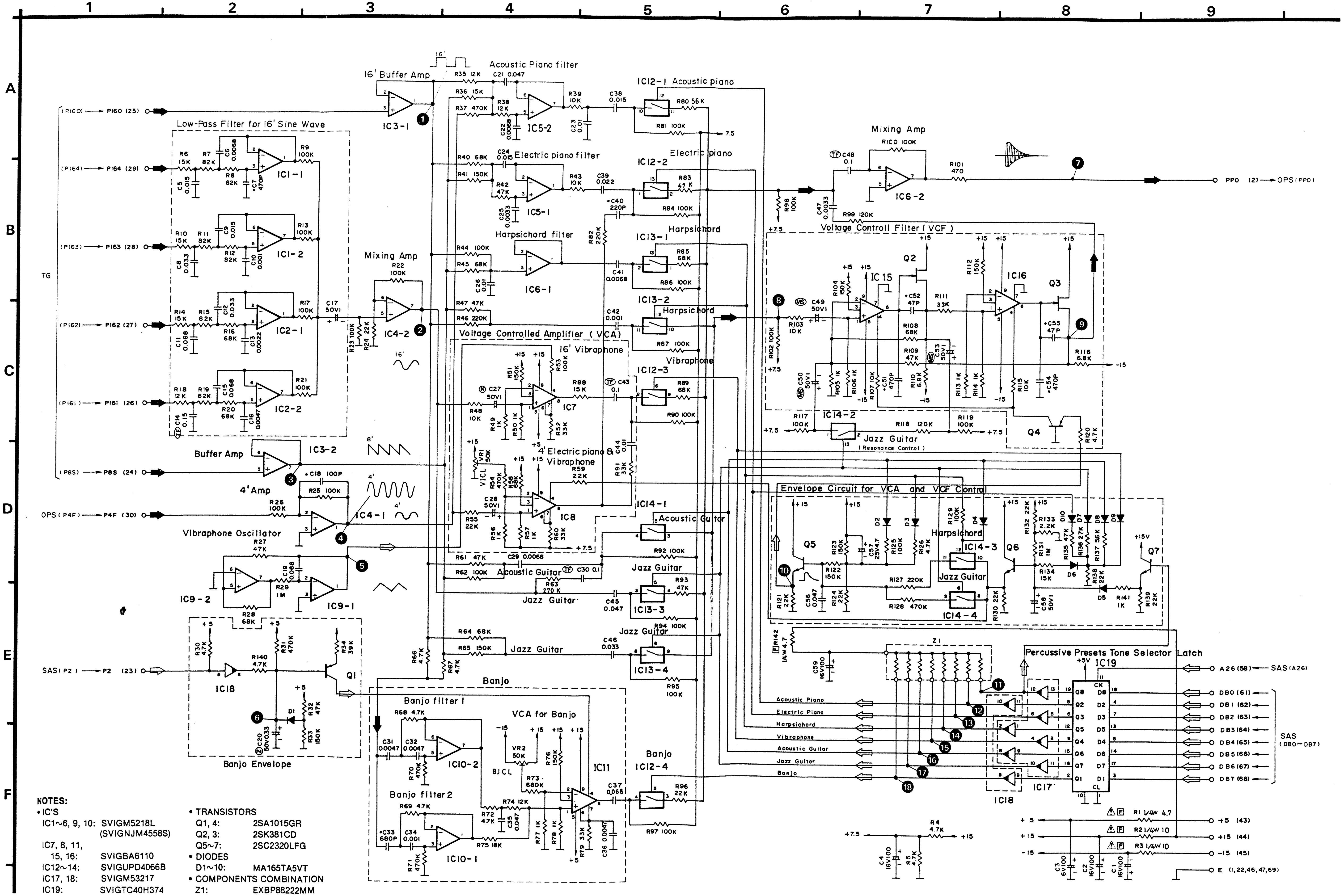
- IC'S

IC1~4, 7~9:	SVIGM5218L (SVIGNJM4558S)
IC5, 6, 10:	SVIGBA6110
IC11:	SVIGTC40174B

- TRANSISTORS

Q1, 4, 5:	2SJ40CD
Q2, 3, 6:	2SA1015GR
Q7:	2SC2320LFG

PERCUSSIVE PRESETS CIRCUIT DIAGRAM (PPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
16' Buffer Amp
Acoustic Piano filter
IC3-1
IC5-2
IC12-1 Acoustic piano
Low-Pass Filter for 16' Sine Wave
(P160) → P160 (25)
(P164) → P164 (29)
(P163) → P163 (28)
(P162) → P162 (27)
(P161) → P161 (26)
(P8S) → P8S (24)
OPS (P4F) → P4F (30)
SAS (P2) → P2 (23)
TG
IC1-1
IC1-2
IC2-1
IC2-2
Electric piano filter
IC5-1
IC12-2 Electric piano
Harpsichord filter
IC6-1
IC13-1 Harpsichord
IC13-2 Harpsichord
Mixing Amp
IC4-2
Mixing Amp
IC6-2
PPO (2) → OPS (PPO)
Voltage Controll Filter (VCF)
IC15
IC16
Q2
Q3
Q4
Voltage Controlled Amplifier (VCA)
16' Vibraphone
IC7
IC12-3 Vibraphone
4' Electric piano & Vibraphone
IC8
VICL
VR1 50K
IC14-2 Jazz Guitar (Resonance Control)
Buffer Amp
IC3-2
4' Amp
IC4-1
Vibraphone Oscillator
IC9-2
IC9-1
IC14-1 Acoustic Guitar
Acoustic Guitar
Jazz Guitar
IC13-3
Jazz Guitar
IC13-4
Envelope Circuit for VCA and VCF Control
Q5
Q6
Q7
Harpsichord
IC14-3
Jazz Guitar
IC14-4
IC18
Q1
Banjo Envelope
Banjo
Banjo filter 1
IC10-2
Banjo filter 2
IC10-1
VCA for Banjo
VR2 50K
BJCL
IC11
Banjo
IC12-4
Percussive Presets Tone Selector Latch
IC19
Z1
IC17
IC18
Acoustic Piano
Electric Piano
Harpsichord
Vibraphone
Acoustic Guitar
Jazz Guitar
Banjo
A26 (58) ← SAS (A26)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
SAS (DB0~DB7)
+5 (43)
+15 (44)
-15 (45)
E (1,22,46,47,69)
R1 1/4W 4.7
R2 1/4W 10
R3 1/4W 10
R142 1/4W 4.7
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

NOTES:

- IC'S

IC1~6, 9, 10:	SVIGM5218L (SVIGNJM4558S)
IC7, 8, 11, 15, 16:	SVIGBA6110
IC12~14:	SVIGUPD4066B
IC17, 18:	SVIGM53217
IC19:	SVIGTC40H374

- TRANSISTORS

Q1, 4:	2SA1015GR
Q2, 3:	2SK381CD
Q5~7:	2SC2320LFG

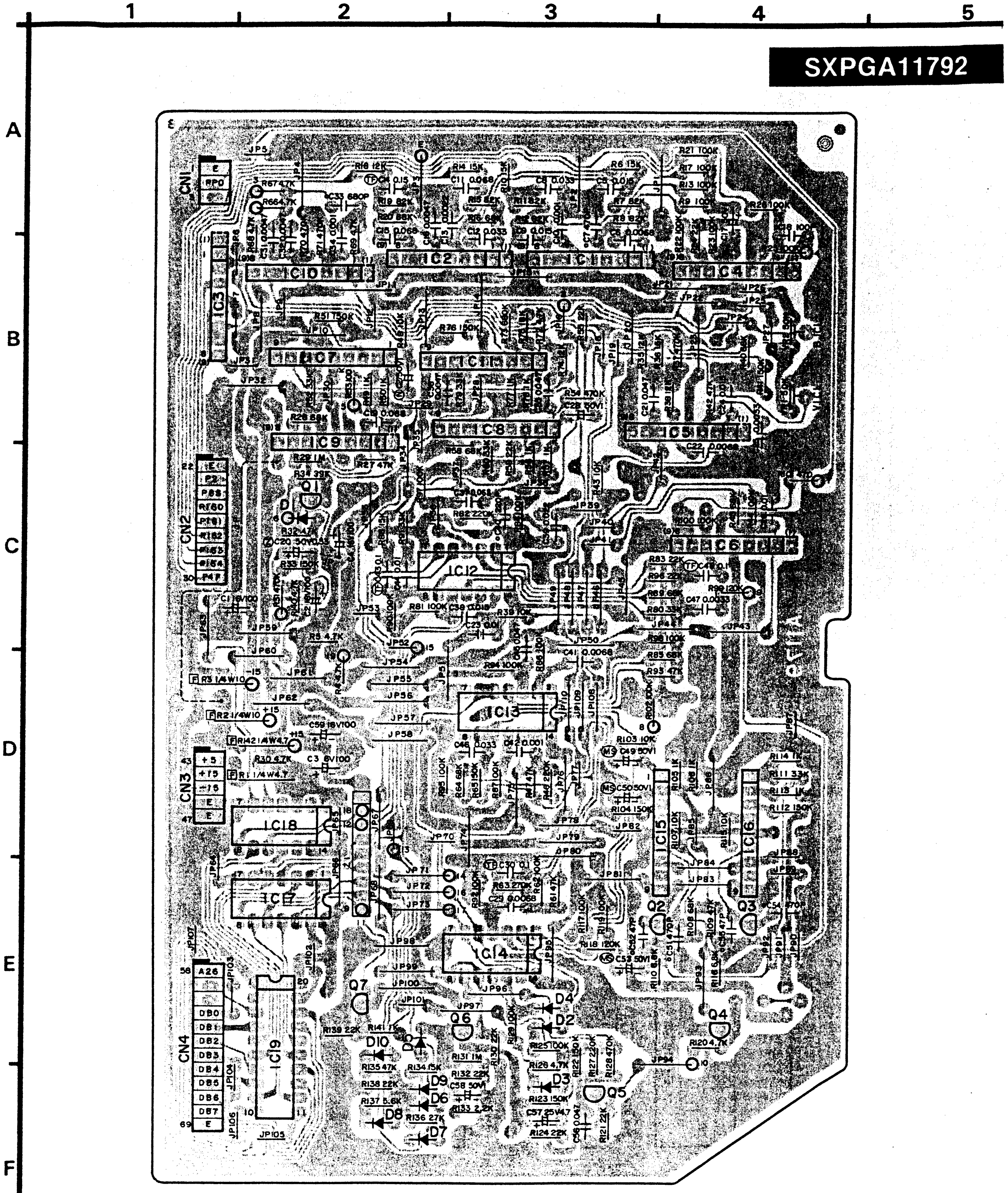
- DIODES

D1~10:	MA165TA5VT

- COMPONENTS COMBINATION

Z1:	EXBP88222MM

PERCUSSIVE PRESETS CIRCUIT BOARD (PPS)



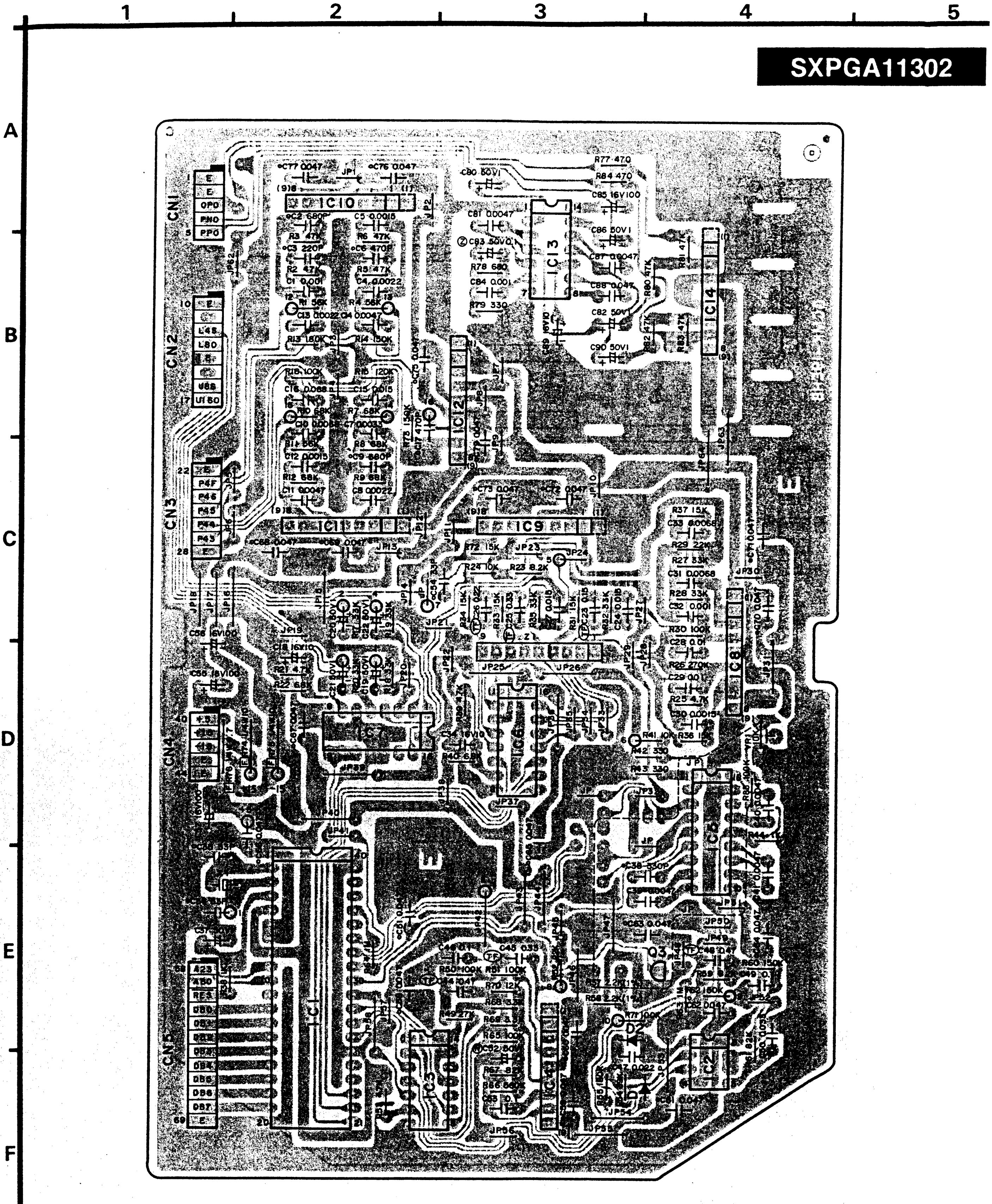
1
2
3
4
5
A
B
C
D
E
F
SXPGA11792
CN1
CN2
CN3
CN4
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
Q1
Q2
Q3
Q4
Q5
Q6
Q7
D1
D2
D3
D4
D6
D7
D8
D9
D10
E
RPO
P88
R180
P181
R182
P183
P184
P47
+5
+15
-15
A26
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7

NOTES:

- IC'S
  - IC1~6, 9, 10: SVIGM5218L (SVIGNJM4558S)
  - IC7, 8, 11, 15, 16: SVIGBA6110
  - IC12~14: SVIGUPD4066B
  - IC17, 18: SVIGM53217
  - IC19: SVIGTC40H374
- TRANSISTORS
  - Q1, 4: 2SA1015GR
  - Q2, 3: 2SK381CD
  - Q5~7: 2SC2320LFG
- DIODES
  - D1~10: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88222MM

ORCHESTRAL PRESETS CIRCUIT BOARD (OPS)

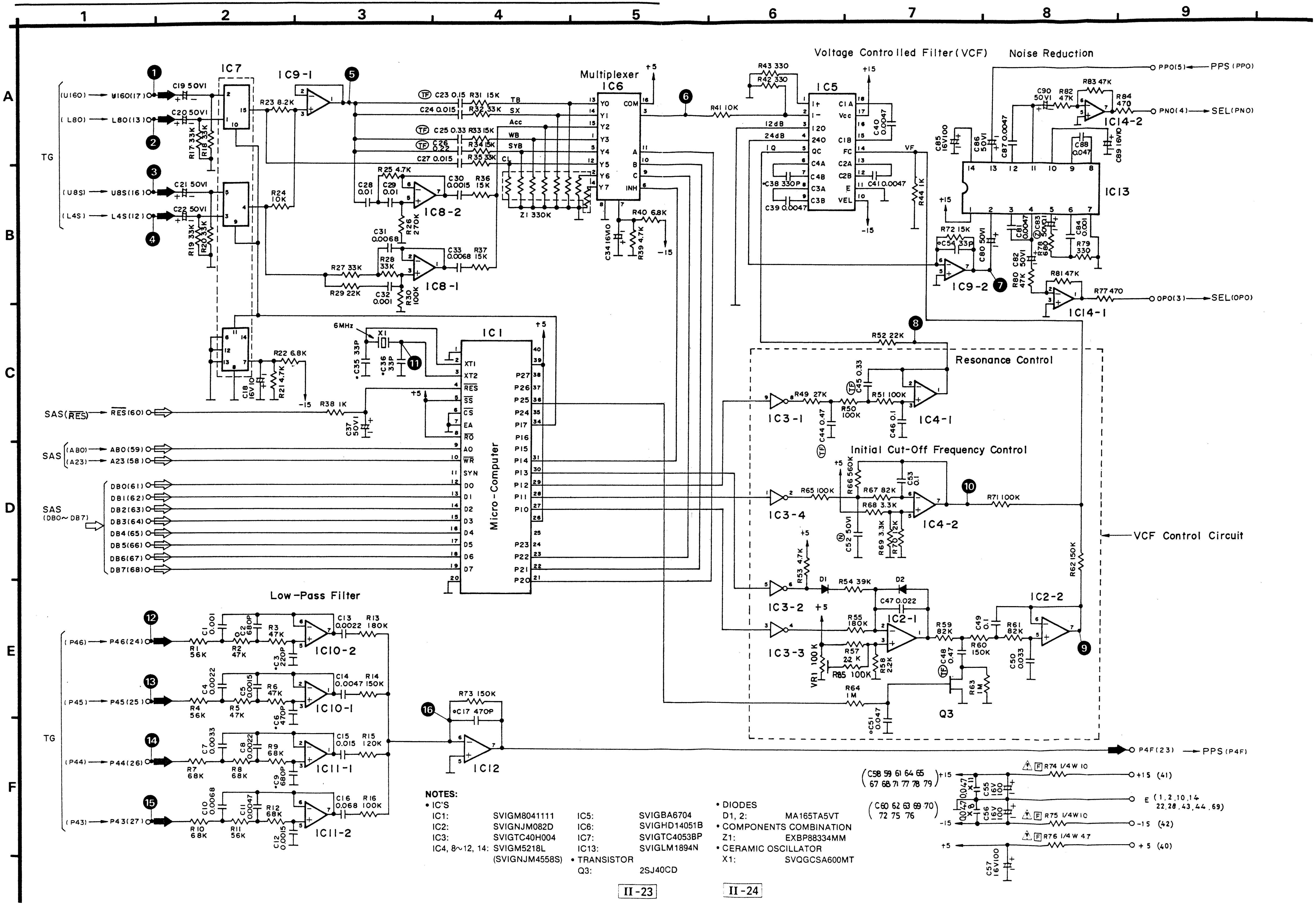
SXPGA11302


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
Q3
D1
D2
Z1
X1
E

NOTES:

- IC'S
  - IC1: SVIGM8041111
  - IC2: SVIGNJM082D
  - IC3: SVIGTC40H004
  - IC4, 8~12, 14: SVIGM5218L (SVIGNJM4558S)
  - IC5: SVIGBA6704
  - IC6: SVIGHD14051B
  - IC7: SVIGTC4053BP
  - IC13: SVIGLM1894N
- TRANSISTOR
  - Q3: 2SJ40CD
- DIODES
  - D1, 2: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88334NM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA600MT

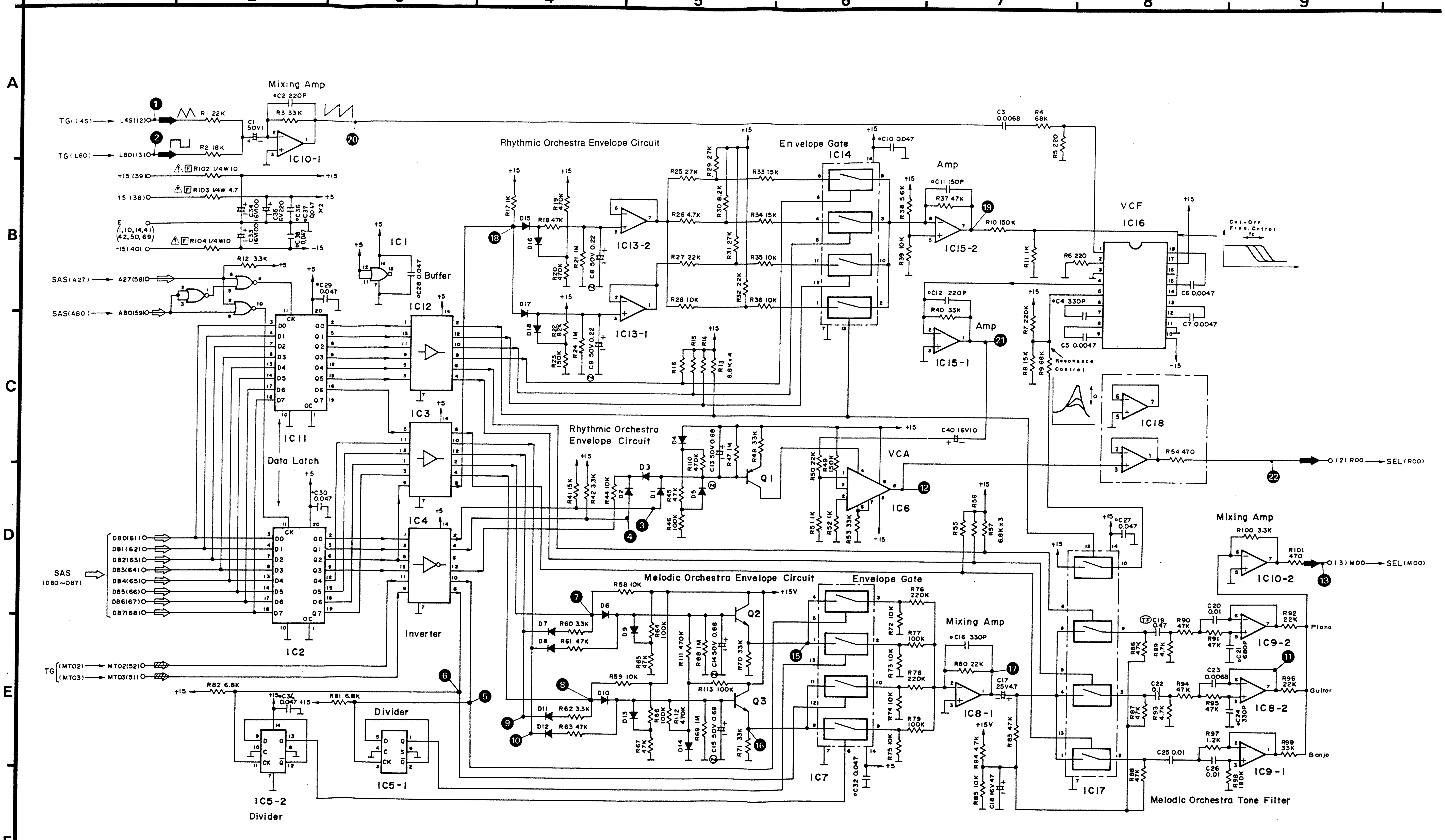
ORCHESTRAL PRESETS CIRCUIT DIAGRAM (OPS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
TG
(U160) → U160(17)
(L80) → L80(13)
(U8S) → U8S(16)
(L4S) → L4S(12)
IC7
IC9-1
IC8-2
IC8-1
Multiplexer
IC6
COM
Y0
Y1
Y2
Y3
Y4
Y5
Y6
Y7
INH
TB
SX
Acc
WB
SYB
CL
Z1 330K
Voltage Controlled Filter (VCF)
Noise Reduction
IC5
IC13
IC14-2
IC14-1
IC9-2
12dB
24dB
1Q
VF
PP0(5) ← PPS (PP0)
PN0(4) → SEL (PN0)
OP0(3) → SEL (OP0)
IC1
Micro-Computer
6MHz
X1
SAS(RES) → RES(60)
SAS (AB0) → AB0(59)
(A23) → A23(58)
SAS (DB0~DB7)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
Resonance Control
Initial Cut-Off Frequency Control
VCF Control Circuit
IC3-1
IC3-4
IC3-2
IC3-3
IC4-1
IC4-2
IC2-1
IC2-2
Q3
VR1 100K
D1
D2
Low-Pass Filter
(P46) → P46(24)
(P45) → P45(25)
(P44) → P44(26)
(P43) → P43(27)
IC10-2
IC10-1
IC11-1
IC11-2
IC12
P4F(23) → PPS (P4F)
+15 (41)
E (1,2,10,14,22,28,43,44,69)
-15 (42)
+5 (40)
R74 1/4W 10
R75 1/4W 10
R76 1/4W 47
(C58 59 61 64 65 67 68 71 77 78 79)
(C60 62 63 69 70 72 75 76)

NOTES:

- IC'S
  - IC1: SVIGM8041111
  - IC2: SVIGNJM082D
  - IC3: SVIGTC40H004
  - IC4, 8~12, 14: SVIGM5218L (SVIGNJM4558S)
  - IC5: SVIGBA6704
  - IC6: SVIGHD14051B
  - IC7: SVIGTC4053BP
  - IC13: SVIGLM1894N
- TRANSISTOR
  - Q3: 2SJ40CD
- DIODES
  - D1, 2: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88334MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA600MT

ACCOMPANIMENT CIRCUIT DIAGRAM (ACC)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Mixing Amp
IC10-1
TG(L4S) L4S(12)
TG(L80) L80(13)
R1 22K
R2 18K
R3 33K
C2 220P
C1 50V1
+15 (39)
+5 (38)
-15 (40)
R102 1/4W10
R103 1/4W 4.7
R104 1/4W10
SAS(A27) A27(58)
SAS(A80) A80(59)
IC1
Buffer
IC11
Data Latch
IC12
IC3
IC4
Inverter
IC2
SAS (DB0~DB7)
DB0(61) DB1(62) DB2(63) DB3(64) DB4(65) DB5(66) DB6(67) DB7(68)
TG (MT02) MT02(52)
(MT03) MT03(51)
R82 6.8K
R81 6.8K
Divider
IC5-1
IC5-2
Divider
Rhythmic Orchestra Envelope Circuit
IC13-2
IC13-1
Envelope Gate
IC14
Amp
IC15-2
IC15-1
VCF
IC16
Cut-Off Freq. Control fc
Resonance Control
IC18
R54 470
(2) R00 SEL(R00)
Rhythmic Orchestra Envelope Circuit
Q1
VCA
IC6
Melodic Orchestra Envelope Circuit
Q2
Q3
Envelope Gate
IC7
Mixing Amp
IC8-1
IC17
Mixing Amp
IC10-2
R101 470
(3) M00 SEL(M00)
IC9-2
Piano
IC8-2
Guitar
IC9-1
Banjo
Melodic Orchestra Tone Filter

NOTES:

- IC'S

IC1:	SVIGTC40H002
IC2, 11:	SVIGTC40H374
IC3, 12:	SVIGM53217
IC4:	SVIGM53216
IC5:	SVIGTC4013BP
IC6:	SVIGBA6110
IC7, 14, 17:	SVIGUPD4066B
IC8~10, 13, 15, 18:	SVIGM5218L (SVIGNJM4558S)
IC16:	SVIGBA6704

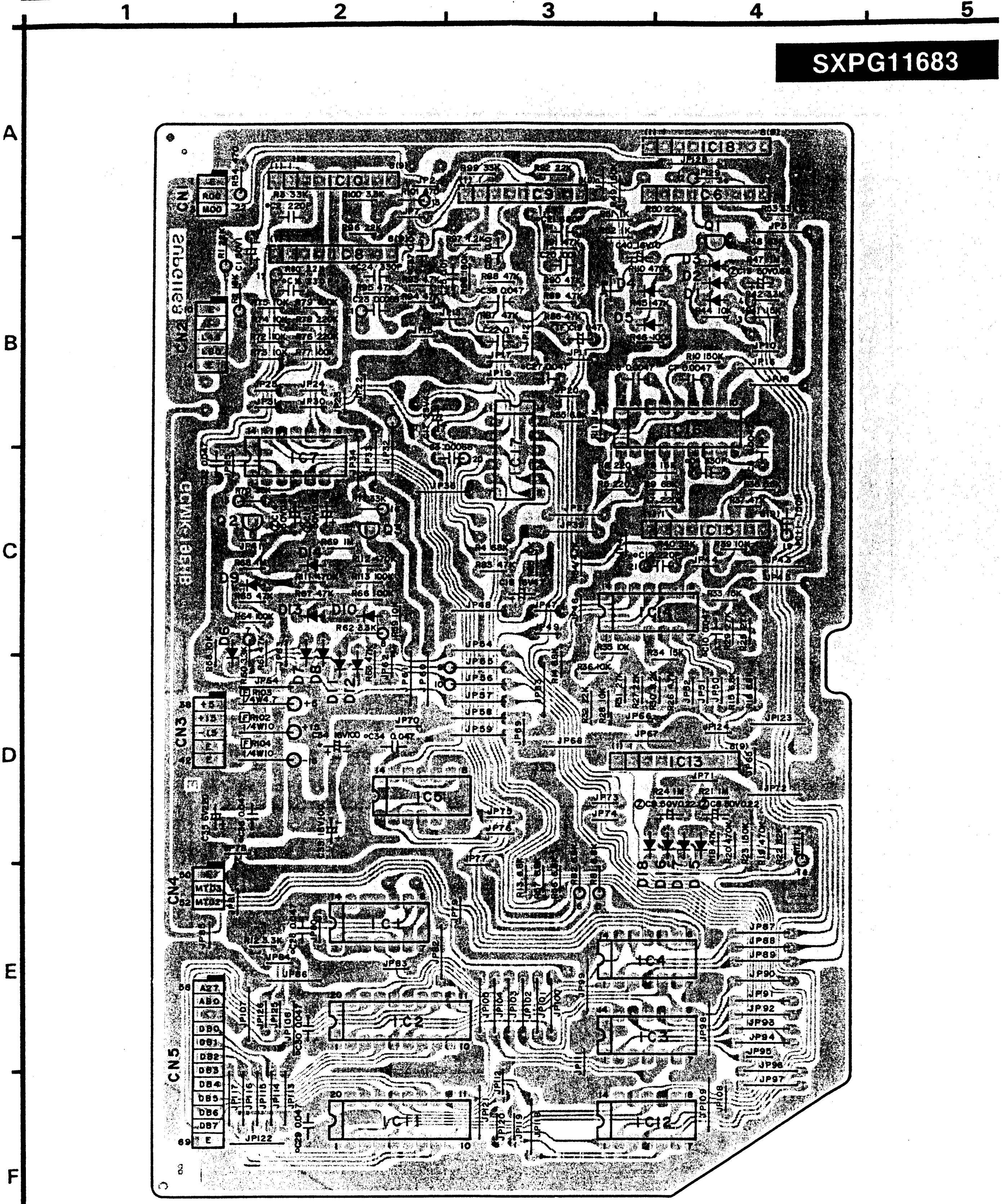
- TRANSISTORS

Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

D1~18:	MA165TA5VT

ACCOMPANIMENT CIRCUIT BOARD (ACC)

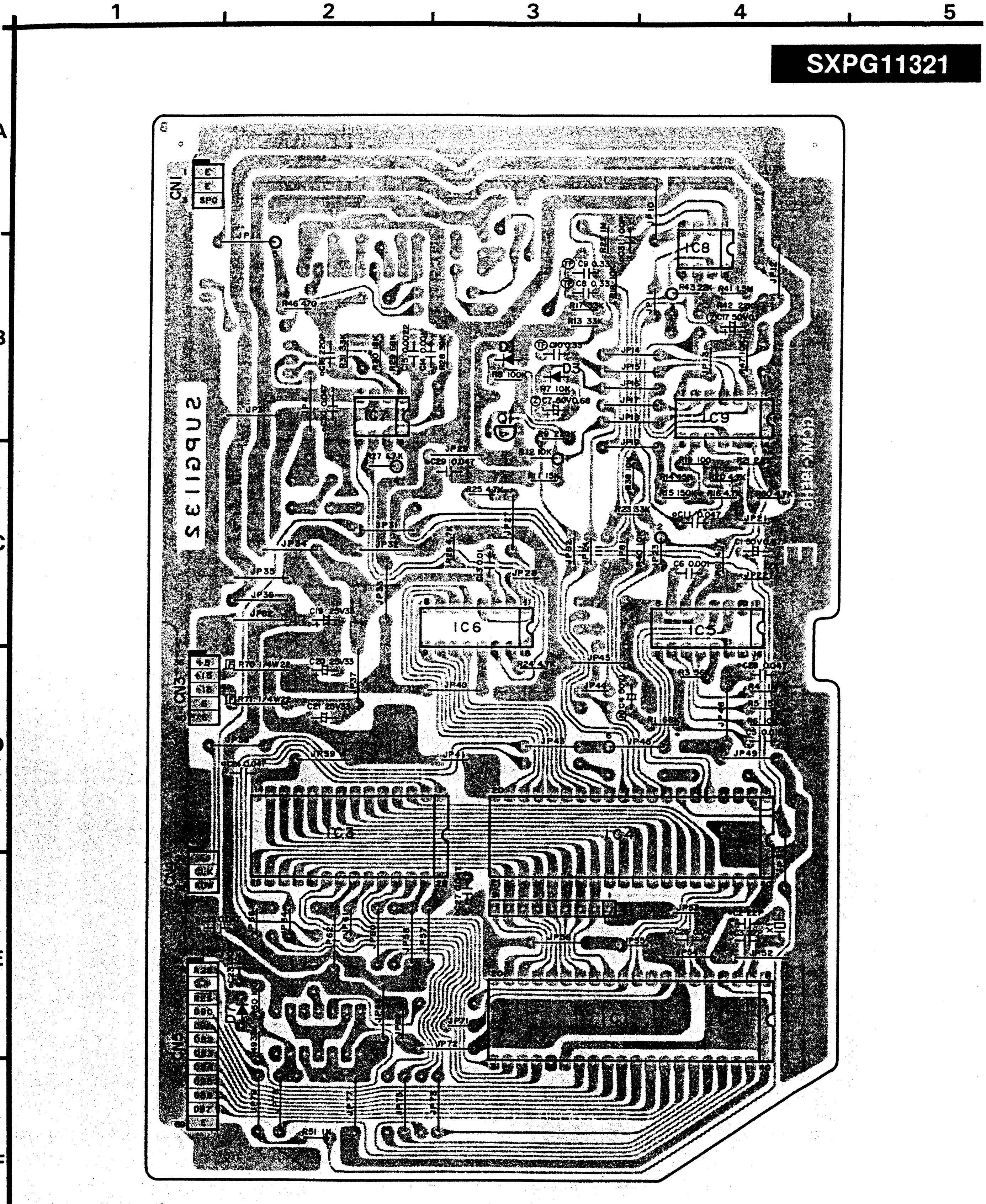

1
2
3
4
5
A
B
C
D
E
F
SXPG11683
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
Q1
Q2
Q3
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
GCMK1696B
A27
ABO
DBO
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
+5
+15
-15
MTD3
MTD2
JP87
JP88
JP89
JP90
JP91
JP92
JP93
JP94
JP95
JP96
JP97
JP122
JP123
JP124

NOTES:

- IC'S
  - IC1: SVIGTC40H002
  - IC2, 11: SVIGTC40H374
  - IC3, 12: SVIGM53217
  - IC4: SVIGM53216
  - IC5: SVIGTC4013BP
  - IC6: SVIGBA6110
  - IC7, 14, 17: SVIGUPD4066B
  - IC8~10, 13, 15, 18: SVIGM5218L (SVIGNJM4558S)
  - IC16: SVIGBA6704
- TRANSISTORS
  - Q1: 2SA1015GR
  - Q2, 3: 2SC2320LFG
- DIODES
  - D1~18: MA165TA5VT

SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)

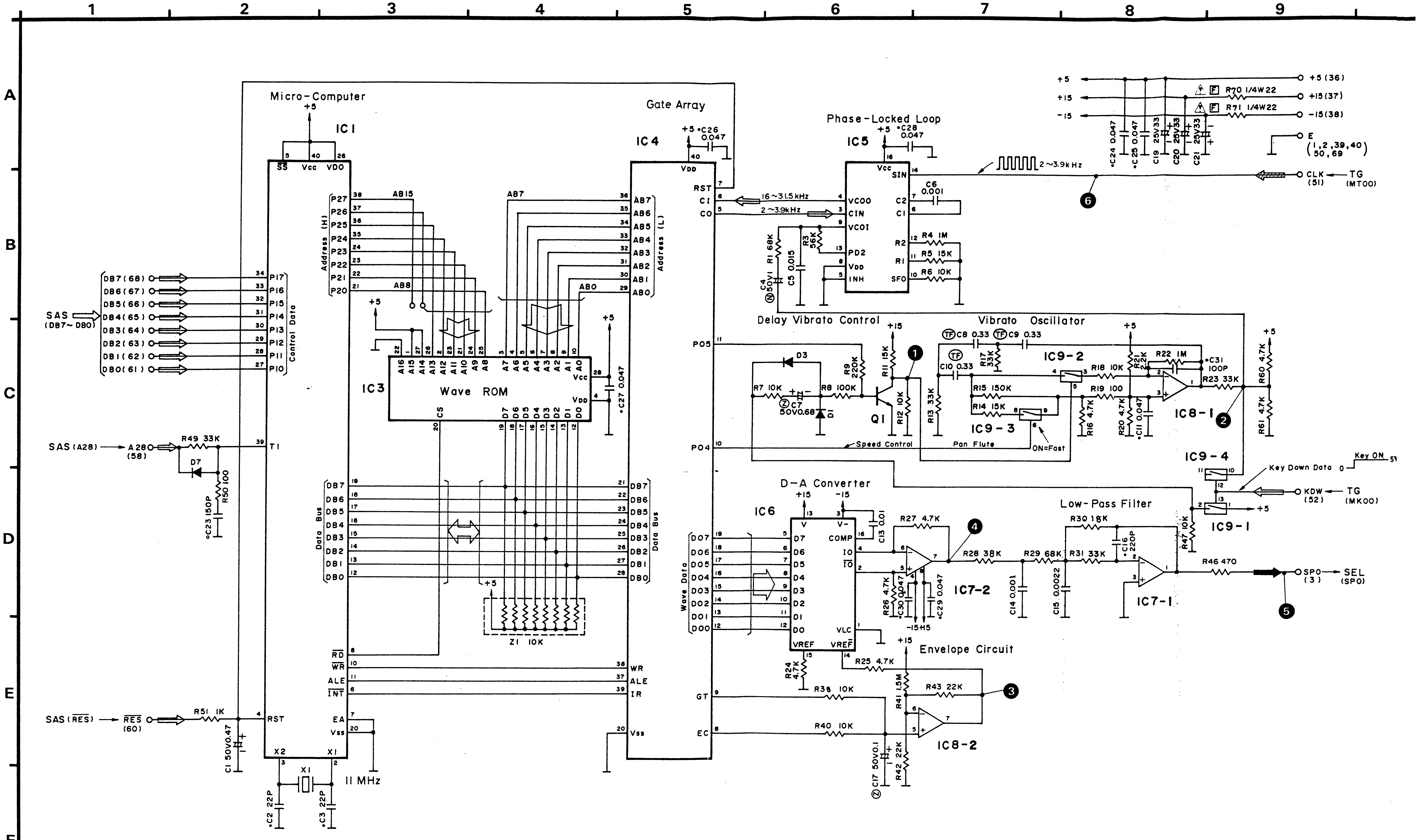
SXPG11321


1
2
3
4
5
A
B
C
D
E
F
CN1
E
E
SPO
IC8
IC7
IC9
IC6
IC5
IC3
IC4
D1
D3
Q1
CN3
CN4
CN5
SXPG11321
R46 470
R43 22K
R41 1.5M
R42 22K
R13 33K
R18 100K
R7 10K
R12 10K
R25 4.7K
R27 4.7K
R23 33K
R24 4.7K
R15 150K
C29 0.047
C6 0.001
C19 25V33
C20 25V33
C21 25V33
R70 1/4W22
R71 1/4W22
R51 1K
JP14
JP15
JP16
JP17
JP18
JP19
JP29
JP31
JP32
JP34
JP35
JP36
JP37
JP39
JP40
JP41
JP43
JP44
JP45
JP46
JP49
JP52
JP53
JP55
JP71
JP72

NOTES:

- IC'S
  - IC1: SVIGM8049569
  - IC3: SVIG23128196
  - IC4: SVIG65002019
  - IC5: SVIGHD14046B
  - IC6: SVIGUPC624C
  - IC7: AN6552F
  - IC8: SVIGNJM082D
  - IC9: SVIGUPD4066B
- TRANSISTOR
  - Q1: 2SC2320LFG
- DIODES
  - D1, 3, 7: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT

SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)

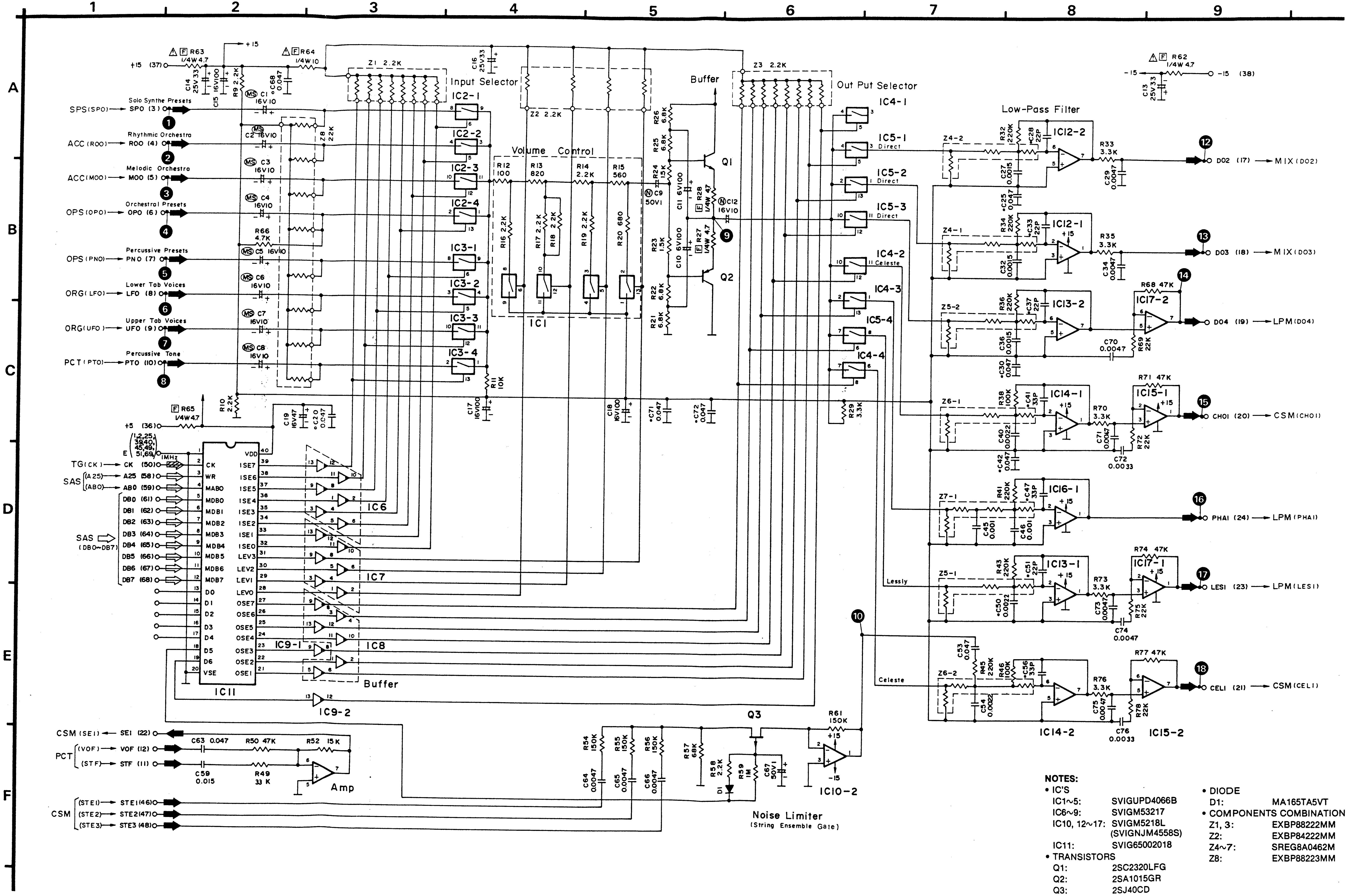


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro-Computer
IC1
Gate Array
IC4
Phase-Locked Loop
IC5
Wave ROM
IC3
D-A Converter
IC6
Delay Vibrato Control
Vibrato Oscillator
IC9-2
IC9-3
IC9-4
IC9-1
IC8-1
IC8-2
IC7-2
IC7-1
Q1
Low-Pass Filter
Envelope Circuit
Address (H)
Address (L)
Control Data
Data Bus
Wave Data
SAS (DB7~DB0)
DB7(68)
DB6(67)
DB5(66)
DB4(65)
DB3(64)
DB2(63)
DB1(62)
DB0(61)
SAS (A28) → A28 (58)
SAS (RES) → RES (60)
R49 33K
D7
R50 100
C23 150P
R51 1K
C1 50V0.47
X1
11 MHz
C2 22P
C3 22P
Z1 10K
+5 C26 0.047
+5 C28 0.047
C27 0.047
16~31.5kHz
2~3.9kHz
2~3.9kHz
C6 0.001
R4 1M
R5 15K
R6 10K
R1 68K
R3 56K
C5 0.015
C4 50V1
+5 (36)
+15 (37)
-15 (38)
R70 1/4W22
R71 1/4W22
C24 0.047
C25 0.047
C19 25V33
C20 25V33
C21 25V33
E (1,2,39,40, 50,69)
CLK ← TG (51) (MT00)
KDW → TG (52) (MK00)
SP0 → SEL (3) (SP0)
Key Down Data
Key ON 5V
D3
D1
R7 10K
C7 50V0.68
R8 100K
R9 220K
R11 15K
R12 10K
R13 33K
C8 0.33
C9 0.33
C10 0.33
R17 33K
R15 150K
R14 15K
R18 10K
R19 100
R21 22K
R22 1M
C31 100P
R23 33K
R16 4.7K
R20 4.7K
C11 0.047
R60 4.7K
R61 4.7K
Speed Control
Pan Flute
ON=Fast
C13 0.01
R27 4.7K
R28 38K
R29 68K
R30 18K
R31 33K
C16 220P
R47 10K
R46 470
R26 4.7K
C30 0.047
C29 0.047
C14 0.001
C15 0.0022
R24 4.7K
R25 4.7K
R38 10K
R41 1.5M
R43 22K
R40 10K
R42 22K
C17 50V0.1

NOTES:

- IC'S
  - IC1: SVIGM8049569
  - IC3: SVIG23128196
  - IC4: SVIG65002019
  - IC5: SVIGHD14046B
  - IC6: SVIGUPC624C
  - IC7: AN6552F
  - IC8: SVIGNJM082D
  - IC9: SVIGUPD4066B
- TRANSISTOR
  - Q1: 2SC2320LFG
- DIODES
  - D1, 3, 7: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT

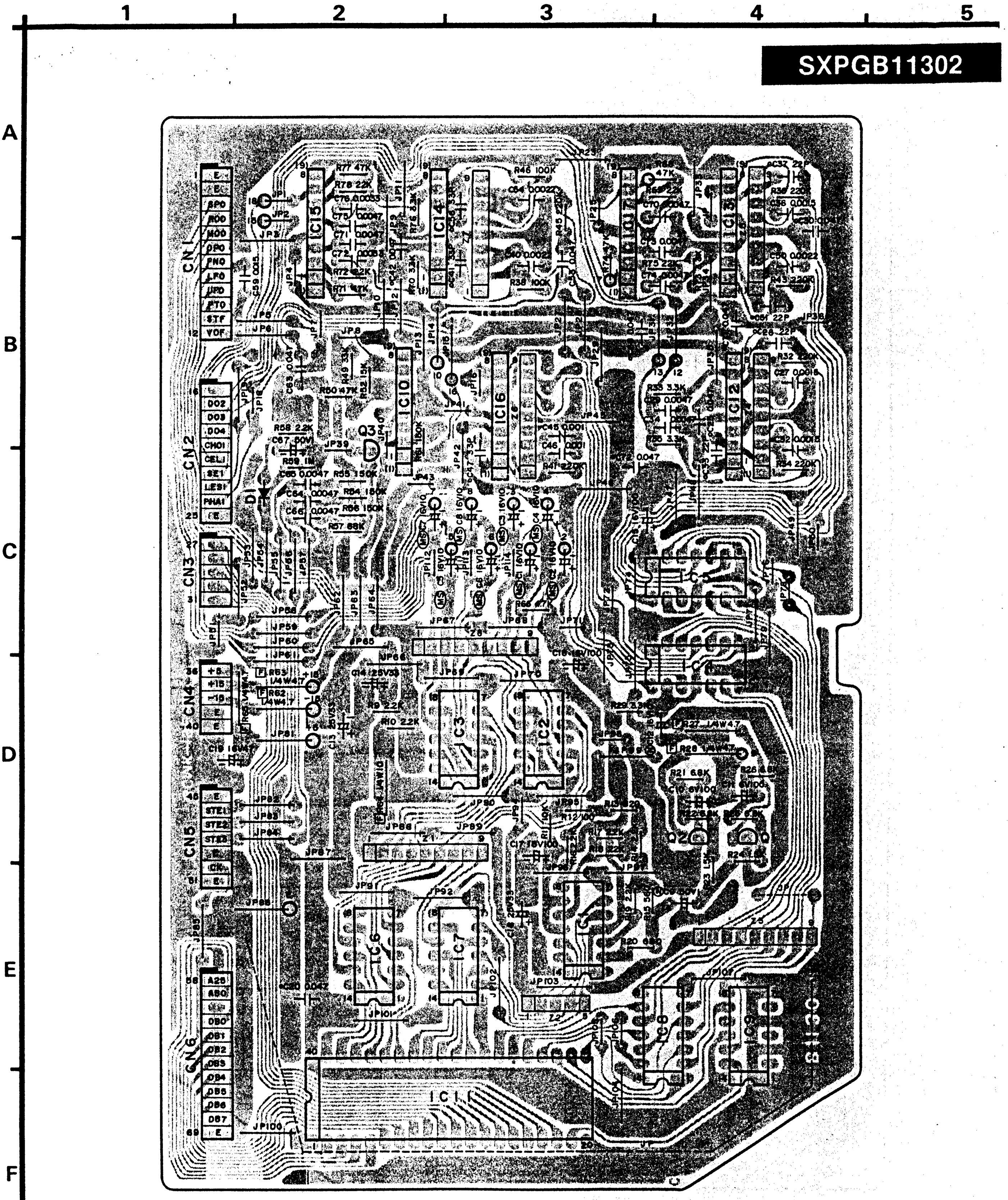
SELECTOR CIRCUIT DIAGRAM (SEL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15 (37)
R63 1/4W 4.7
R64 1/4W 10
C14 25V33
C15 16V100
R9 2.2K
C68 0.047
C16 25V33
Z1 2.2K
Input Selector
IC2-1
IC2-2
IC2-3
IC2-4
IC3-1
IC3-2
IC3-3
IC3-4
Z2 2.2K
Volume Control
R12 100
R13 820
R14 2.2K
R15 560
R16 2.2K
R17 2.2K
R18 2.2K
R19 2.2K
R20 680
IC1
Buffer
Q1
Q2
R26 6.8K
R25 6.8K
R24 15K
R23 1.5K
R22 6.8K
R21 6.8K
R28 1/4W 47
R27 1/4W 4.7
C9 50V1
C10 6V100
C11 6V100
C12 16V10
Z3 2.2K
Out Put Selector
IC4-1
IC5-1 Direct
IC5-2 Direct
IC5-3 Direct
IC4-2 Celeste
IC4-3
IC5-4
IC4-4
R29 3.3K
R62 1/4W 4.7
-15 (38)
C13 25V33
Low-Pass Filter
IC12-2
IC12-1
IC13-2
IC14-1
IC16-1
IC13-1
IC14-2
IC17-2
IC15-1
IC17-1
IC15-2
Z4-2
Z4-1
Z5-2
Z6-1
Z7-1
Z5-1
Z6-2
R32 220K
R33 3.3K
R34 220K
R35 3.3K
R36 220K
R38 100K
R41 220K
R43 220K
R45 220K
R46 100K
R68 47K
R69 22K
R70 3.3K
R71 47K
R72 22K
R73 3.3K
R74 47K
R75 22K
R76 3.3K
R77 47K
R78 22K
C27 0.0015
C28 22P
C29 0.0047
C25 0.047
C32 0.0015
C33 22P
C34 0.0047
C36 0.0015
C37 22P
C30 0.047
C70 0.0047
C40 0.0022
C41 33P
C42 0.047
C71 0.0047
C72 0.0033
C45 0.001
C46 0.001
C47 33P
C50 0.0022
C51 22P
C73 0.0047
C74 0.0047
C53 0.047
C54 0.0022
C56 33P
C75 0.0047
C76 0.0033
Lessly
Celeste
D02 (17) → MIX (D02)
D03 (18) → MIX (D03)
D04 (19) → LPM (D04)
CHO1 (20) → CSM (CHO1)
PHA1 (24) → LPM (PHA1)
LES1 (23) → LPM (LES1)
CEL1 (21) → CSM (CEL1)
SPS (SPO) → SPO (3) Solo Synthe Presets
ACC (ROO) → ROO (4) Rhythmic Orchestra
ACC (MOO) → MOO (5) Melodic Orchestra
OPS (OPO) → OPO (6) Orchestral Presets
OPS (PNO) → PNO (7) Percussive Presets
ORG (LFO) → LFO (8) Lower Tab Voices
ORG (UFO) → UFO (9) Upper Tab Voices
PCT (PTO) → PTO (10) Percussive Tone
C1 16V10
C2 16V10
C3 16V10
C4 16V10
C5 16V10
C6 16V10
C7 16V10
C8 16V10
R66 4.7K
Z8 22K
R10 2.2K
R11 10K
C17 16V100
C18 16V100
C71 0.047
C72 0.047
R65 1/4W 4.7
+5 (36)
C19 16V47
C20 0.047
E (1,2,25, 39,40, 45,49, 51,69)
1MHz
TG (CK) → CK (50)
SAS (A25) → A25 (58)
(AB0) → AB0 (59)
SAS (DB0~DB7)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
CK
WR
MAB0
MDB0
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
D0
D1
D2
D3
D4
D5
D6
VSE
VDD
ISE7
ISE6
ISE5
ISE4
ISE3
ISE2
ISE1
ISE0
LEV3
LEV2
LEV1
LEV0
OSE7
OSE6
OSE5
OSE4
OSE3
OSE2
OSE1
IC11
IC6
IC7
IC8
IC9-1
IC9-2
Buffer
CSM (SE1) ← SE1 (22)
PCT (VOF) → VOF (12)
(STF) → STF (11)
C63 0.047
R50 47K
R52 15K
C59 0.015
R49 33K
Amp
CSM (STE1) → STE1 (46)
(STE2) → STE2 (47)
(STE3) → STE3 (48)
R54 150K
R55 150K
R56 150K
R57 68K
R58 2.2K
R59 1M
C64 0.0047
C65 0.0047
C66 0.0047
C67 50V1
D1
Q3
R61 150K
IC10-2
Noise Limiter
(String Ensemble Gate)

NOTES:

- IC'S
  - IC1~5: SVIGUPD4066B
  - IC6~9: SVIGM53217
  - IC10, 12~17: SVIGM5218L (SVIGNJM4558S)
  - IC11: SVIG65002018
- TRANSISTORS
  - Q1: 2SC2320LFG
  - Q2: 2SA1015GR
  - Q3: 2SJ40CD
- DIODE
  - D1: MA165TA5VT
- COMPONENTS COMBINATIONS
  - Z1, 3: EXBP88222MM
  - Z2: EXBP84222MM
  - Z4~7: SREG8A0462M
  - Z8: EXBP88223MM

SELECTOR CIRCUIT BOARD (SEL)


1
2
3
4
5
A
B
C
D
E
F
SXPGB11302
CN1
CN2
CN3
CN4
CN5
CN6
E
SPO
ROO
MOO
DPO
PNO
LPO
UPO
FTO
STF
VOF
DO2
DO3
DO4
CHOI
CELI
SEI
LESI
PHAI
+5
+15
-15
STE1
STE2
STE3
CK
A25
ASO
DBO
DB1
DB2
DB3
DB4
DB5
DB6
DB7
IC1
IC2
IC3
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
Q2
Q3
D1
Z1
Z2
Z5
Z8

NOTES:

- IC'S

IC1~5:	SVIGUPD4066B
IC6~9:	SVIGM53217
IC10, 12~17:	SVIGM5218L (SVIGNJM4558S)
IC11:	SVIG65002018

- TRANSISTORS

Q1:	2SC2320LFG
Q2:	2SA1015GR
Q3:	2SJ40CD

- DIODE

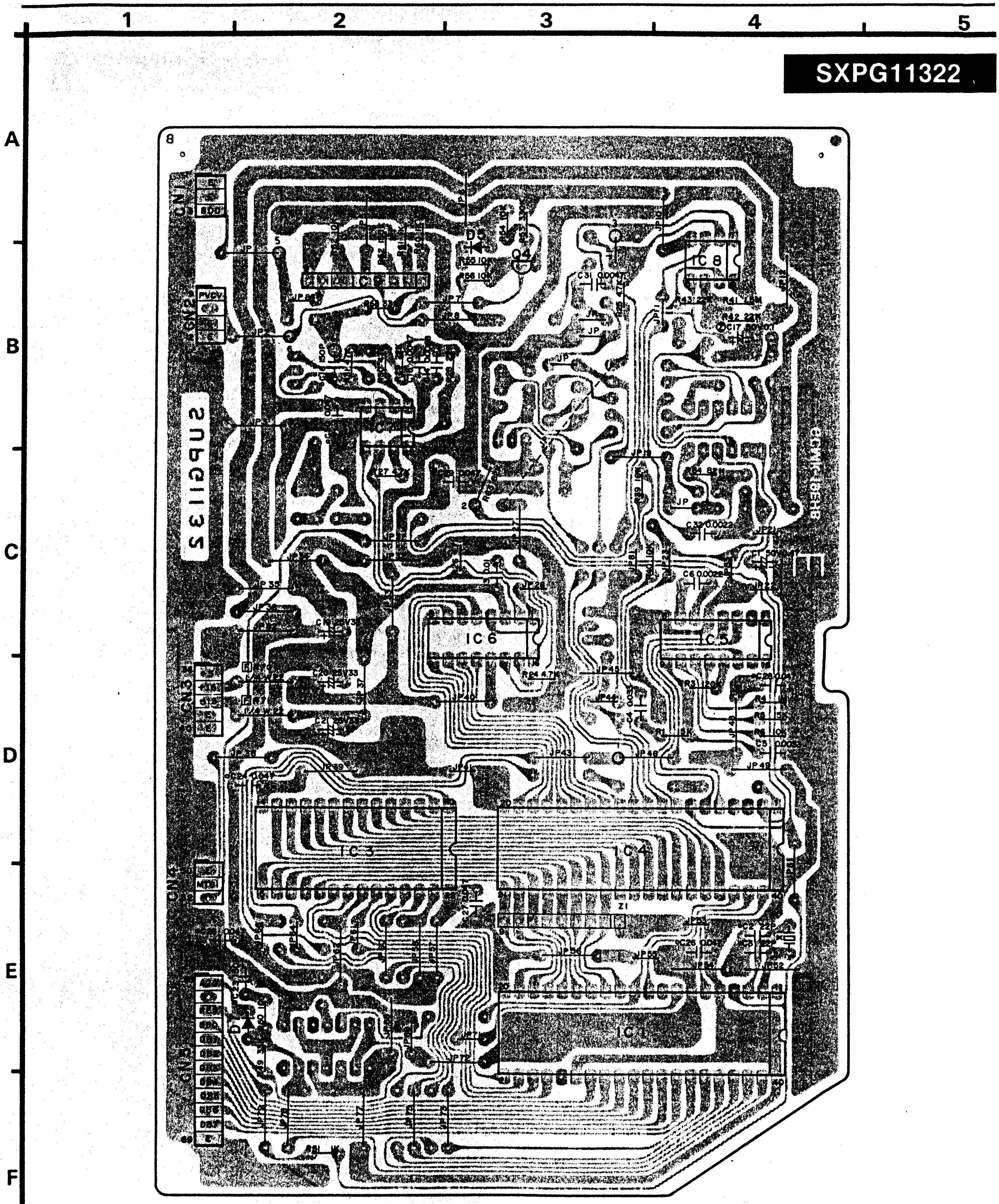
D1:	MA165TA5VT

- COMPONENTS COMBINATIONS

Z1, 3:	EXBP88222MM
Z2:	EXBP84222MM
Z4~7:	SREG8A0462M
Z8:	EXBP88223MM

BASS CIRCUIT BOARD (BAS)

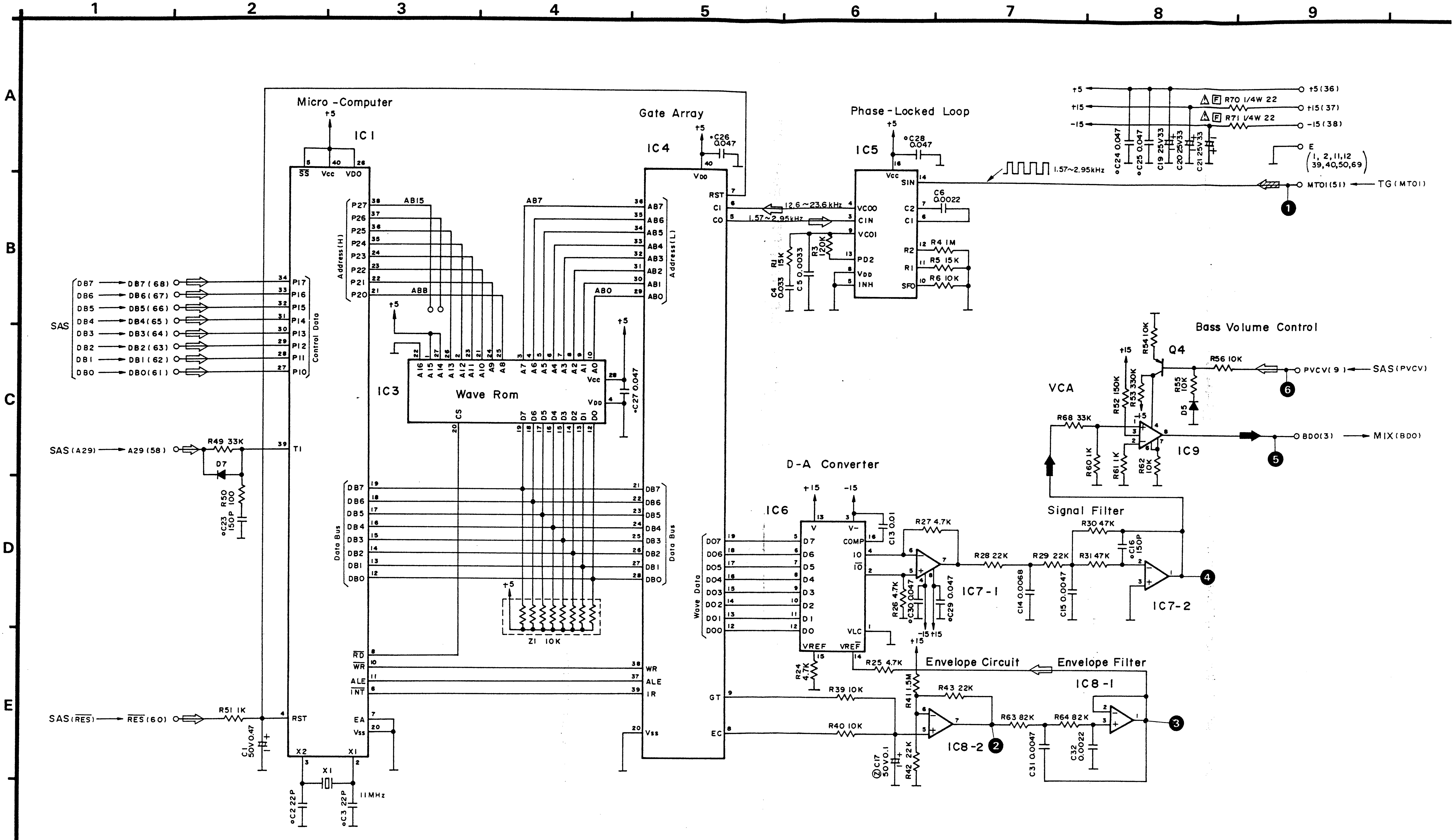
SXPG11322


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC3
IC4
IC5
IC6
IC8
Z1
D5
Q4

NOTES:

- IC'S
  - IC1: SVIGM8049569
  - IC3: SVIG2364096
  - IC4: SVIG65002019
  - IC5: SVIGHD14046B
  - IC6: SVIGUPC624C
  - IC7: AN6552F
  - IC8: SVIGNJM082D
  - IC9: SVIGBA6110
- TRANSISTOR
  - Q4: 2SA1015GR
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT
- DIODE
  - D5, 7: MA165TA5VT
- COMPONENTS COMBINATION
  - Z1: EXBP88103MM

BASS CIRCUIT DIAGRAM (BAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro -Computer
IC1
Gate Array
IC4
Phase-Locked Loop
IC5
IC3
Wave Rom
D-A Converter
IC6
IC7-1
IC7-2
Signal Filter
Envelope Circuit
Envelope Filter
IC8-1
IC8-2
VCA
IC9
Bass Volume Control
Q4
Z1 10K
X1 11MHz
SAS
Control Data
Address(H)
Address(L)
Data Bus
Wave Data
SAS(A29) —— A29(58)
SAS(RES) —— RES(60)
SAS(PVCV)
PVCV(9)
BDO(3) —— MIX(BDO)
MT01(51) —— TG(MT01)
+5(36)
+15(37)
-15(38)
E (1, 2, 11, 12, 39, 40, 50, 69)
R70 1/4W 22
R71 1/4W 22
1.57~2.95kHz
12.6~23.6kHz
1.57~2.95kHz

NOTES:

• IC'S

IC1:	SVIGM8049569
IC3:	SVIG2364096
IC4:	SVIG65002019
IC5:	SVIGHD14046B
IC6:	SVIGUPC624C
IC7:	AN6552F
IC8:	SVIGNJM082D
IC9:	SVIGBA6110

• TRANSISTOR

Q4:	2SA1015GR

• CERAMIC OSCILLATOR

X1:	SVQGCSA110MT

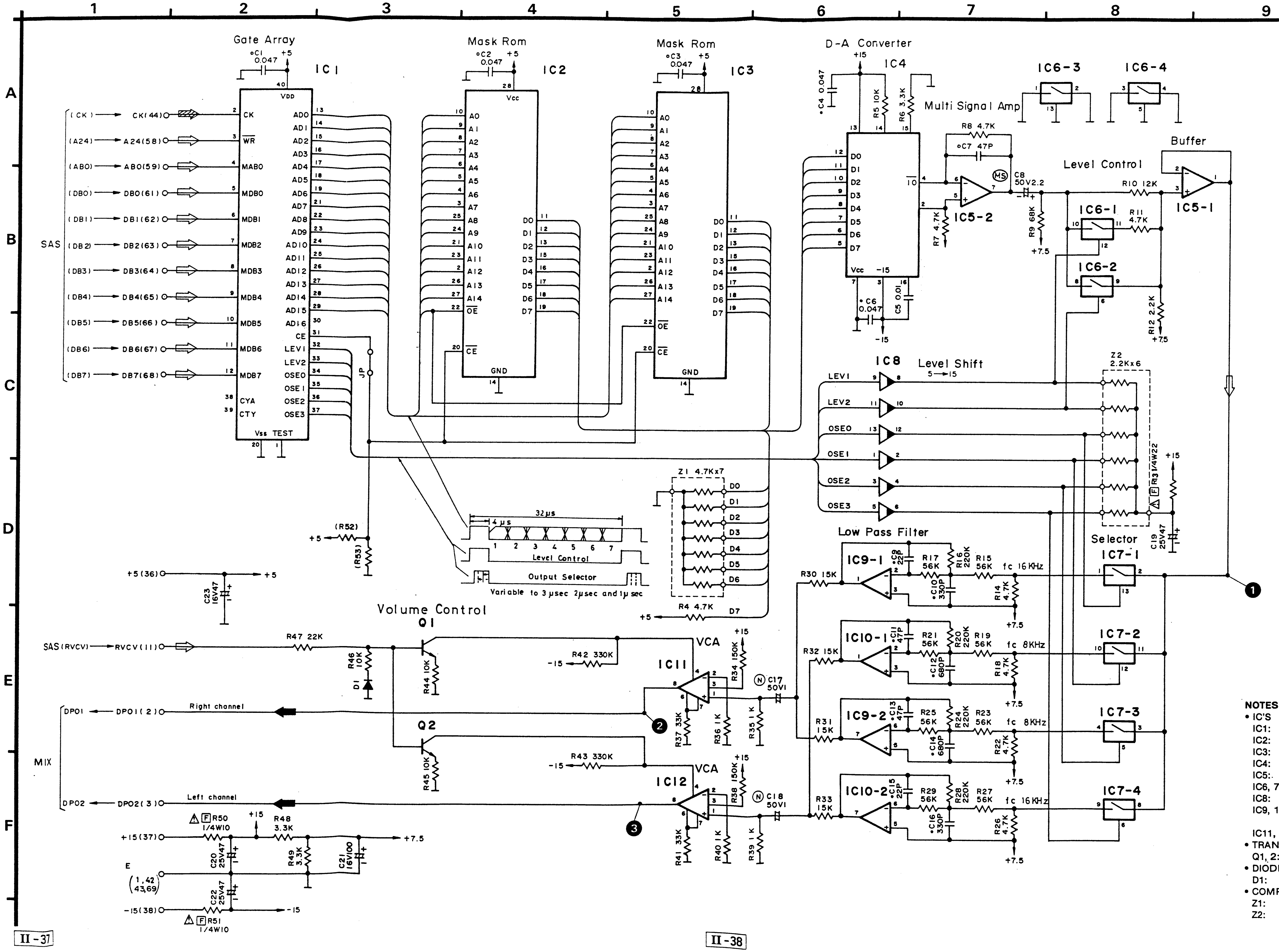
• DIODE

D5, 7:	MA165TA5VT

• COMPONENTS COMBINATION

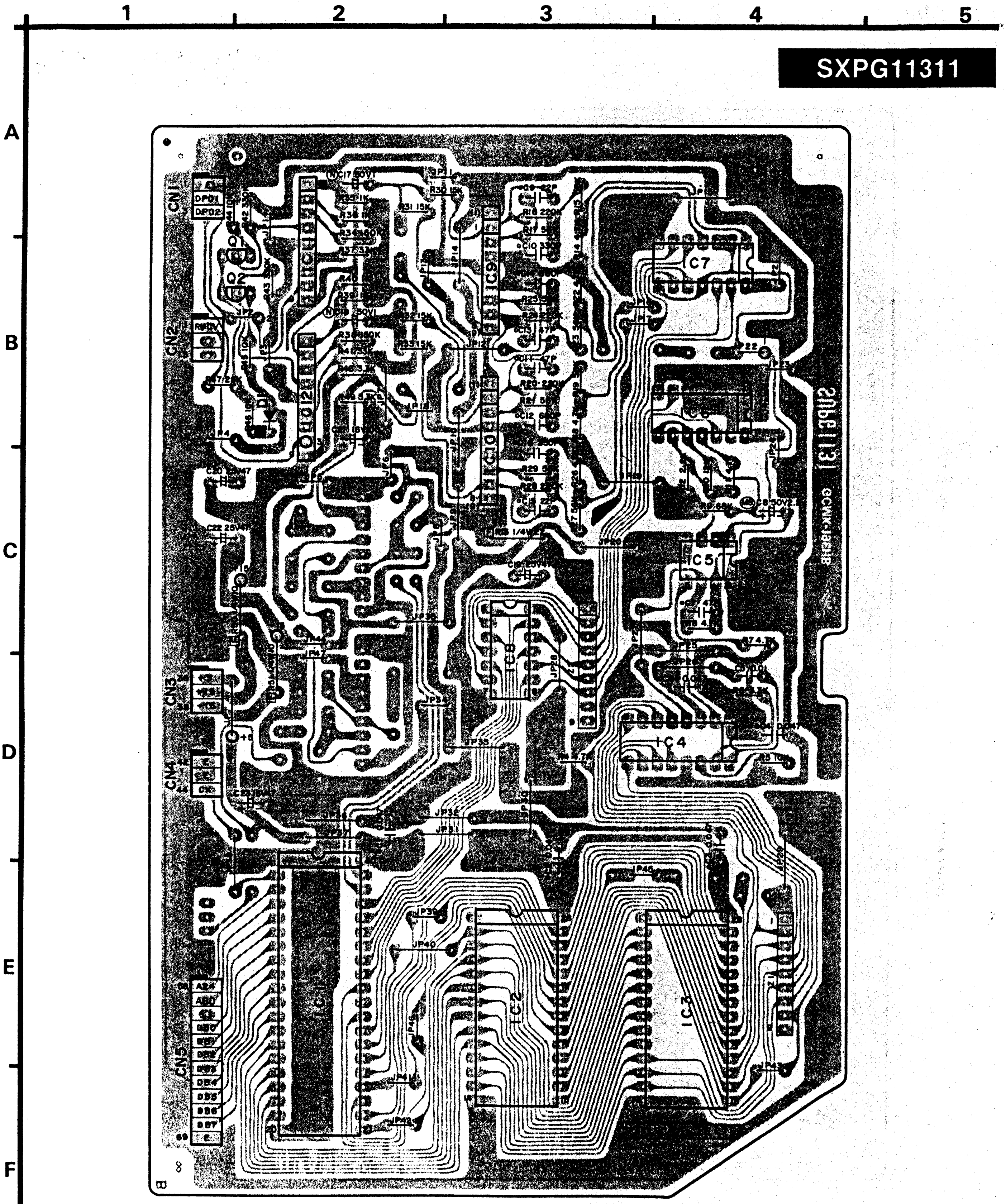
Z1:	EXBP88103MM

DRUM PERCUSSION CIRCUIT DIAGRAM (DP)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Gate Array
IC1
Mask Rom
IC2
Mask Rom
IC3
D-A Converter
IC4
IC6-3
IC6-4
Multi Signal Amp
R8 4.7K
C7 47P
C8 50V2.2
Level Control
R10 12K
Buffer
IC5-1
IC5-2
IC6-1
R11 4.7K
IC6-2
R9 68K
R7 4.7K
R12 2.2K
R5 10K
R6 3.3K
C4 0.047
C6 0.047
C5 0.01
C1 0.047
C2 0.047
C3 0.047
SAS
(CK) CK(44)
(A24) A24(58)
(AB0) AB0(59)
(DB0) DB0(61)
(DB1) DB1(62)
(DB2) DB2(63)
(DB3) DB3(64)
(DB4) DB4(65)
(DB5) DB5(66)
(DB6) DB6(67)
(DB7) DB7(68)
CK
WR
MAB0
MDB0
MDB1
MDB2
MDB3
MDB4
MDB5
MDB6
MDB7
CYA
CTY
Vss TEST
VDD
AD0
AD1
AD2
AD3
AD4
AD5
AD6
AD7
AD8
AD9
AD10
AD11
AD12
AD13
AD14
AD15
AD16
CE
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
JP
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
OE
CE
Vcc
GND
D0
D1
D2
D3
D4
D5
D6
D7
IC8
Level Shift
5→15
LEV1
LEV2
OSE0
OSE1
OSE2
OSE3
Z2 2.2Kx6
R13 1/4W22
C19 25V47
Z1 4.7Kx7
R4 4.7K
32μs
4μs
1 2 3 4 5 6 7
Level Control
Output Selector
Variable to 3μsec 2μsec and 1μ sec
(R52)
(R53)
+5(36)
C23 16V47
Low Pass Filter
IC9-1
R30 15K
C9 22P
R17 56K
R16 220K
R15 56K
C10 330P
R14 4.7K
fc 16KHz
IC10-1
R32 15K
C11 47P
R21 56K
R20 220K
R19 56K
C12 680P
R18 4.7K
fc 8KHz
IC9-2
R31 15K
C13 47P
R25 56K
R24 220K
R23 56K
C14 680P
R22 4.7K
fc 8KHz
IC10-2
R33 15K
C15 22P
R29 56K
R28 220K
R27 56K
C16 330P
R26 4.7K
fc 16KHz
Selector
IC7-1
IC7-2
IC7-3
IC7-4
1
Volume Control
Q1
Q2
SAS(RVCV) RVCV(11)
R47 22K
R46 10K
D1
R44 10K
R45 10K
R42 330K
R43 330K
VCA
IC11
IC12
R34 150K
R38 150K
C17 50V1
C18 50V1
R37 33K
R36 1K
R35 1K
R41 33K
R40 1K
R39 1K
2
3
MIX
DPO1 DPO1(2)
Right channel
DPO2 DPO2(3)
Left channel
R50 1/4W10
R48 3.3K
+15(37)
+7.5
C20 25V47
R49 3.3K
C21 16V100
E (1,42 43,69)
C22 25V47
-15(38)
R51 1/4W10
+5
+15
-15

NOTES:
- IC'S
  IC1: SVIG65010021
  IC2: SVIG3256PC35
  IC3: SVIG3256PC36
  IC4: SVIGUPC624C
  IC5:. SVIGNJM082D
  IC6, 7: SVIGUPD4066B
  IC8: SVIGM53217
  IC9, 10: SVIGM5218L (SVIGNJM4558S)
  IC11, 12: SVIGBA6110
- TRANSISTORS
  Q1, 2: 2SA1015GR
- DIODE
  D1: MA165TA5VT
- COMPONENTS COMBINATIONS
  Z1: EXBP88472MM
  Z2: EXBP88222MM

DRUM PERCUSSION CIRCUIT BOARD (DP)


1
2
3
4
5
A
B
C
D
E
F
SXPG11311
CN1
CN2
CN3
CN4
CN5
Q1
Q2
D1
IC1
IC2
IC3
IC4
IC5
IC7
IC9
IC10
IC12
SUPE1131
GCNV-1285B

NOTES:
- IC'S

IC1: SVIG65010021
IC2: SVIG3256PC35
IC3: SVIG3256PC36
IC4: SVIGUPC624C
IC5: SVIGNJM082D
IC6, 7: SVIGUPD4066B
IC8: SVIGM53217
IC9, 10: SVIGM5218L (SVIGNJM4558S)
IC11, 12: SVIGBA6110

- TRANSISTORS

Q1, 2: 2SA1015GR

- DIODE

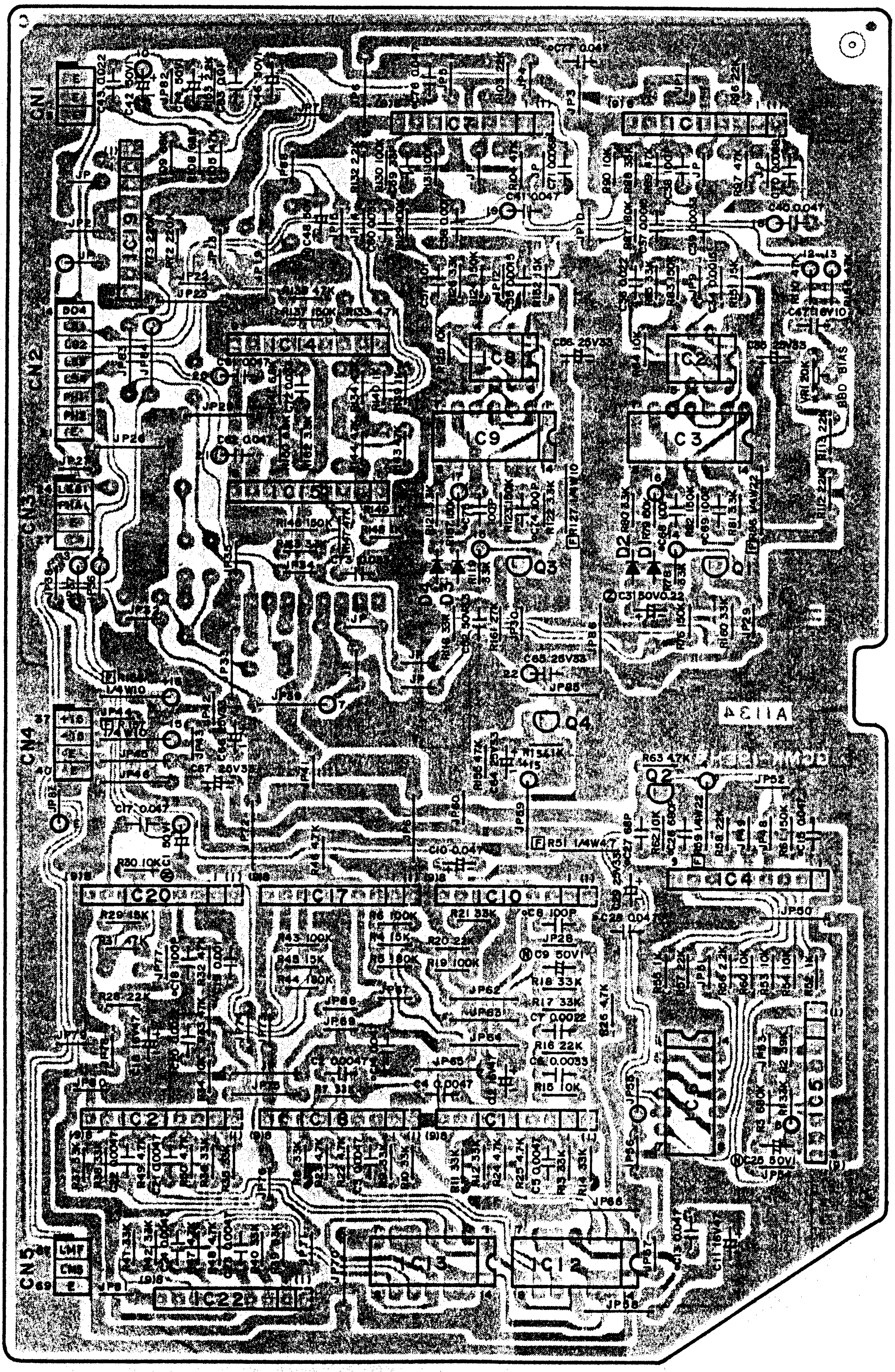
D1: MA165TA5VT

- COMPONENTS COMBINATIONS

Z1: EXBP88472MM
Z2: EXBP88222MM

TREMOLO & PHASER MODULATION CIRCUIT BOARD (LPM)

SXPGA11342


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC20
IC21
IC22
Q1
Q2
Q3
Q4
D1
D2
A113A
BIAS
BBD

NOTES:

- IC'S

IC1, 5, 7, 10,
11, 17~22: SVIGM5218L
(SVIGNJM4558S)
IC2, 8: MN3006
IC3, 6, 9: SVIGMSM4011
IC4: AN6913
IC12, 13: SVIGUPD4066B
IC14, 15: SVIGBA6110

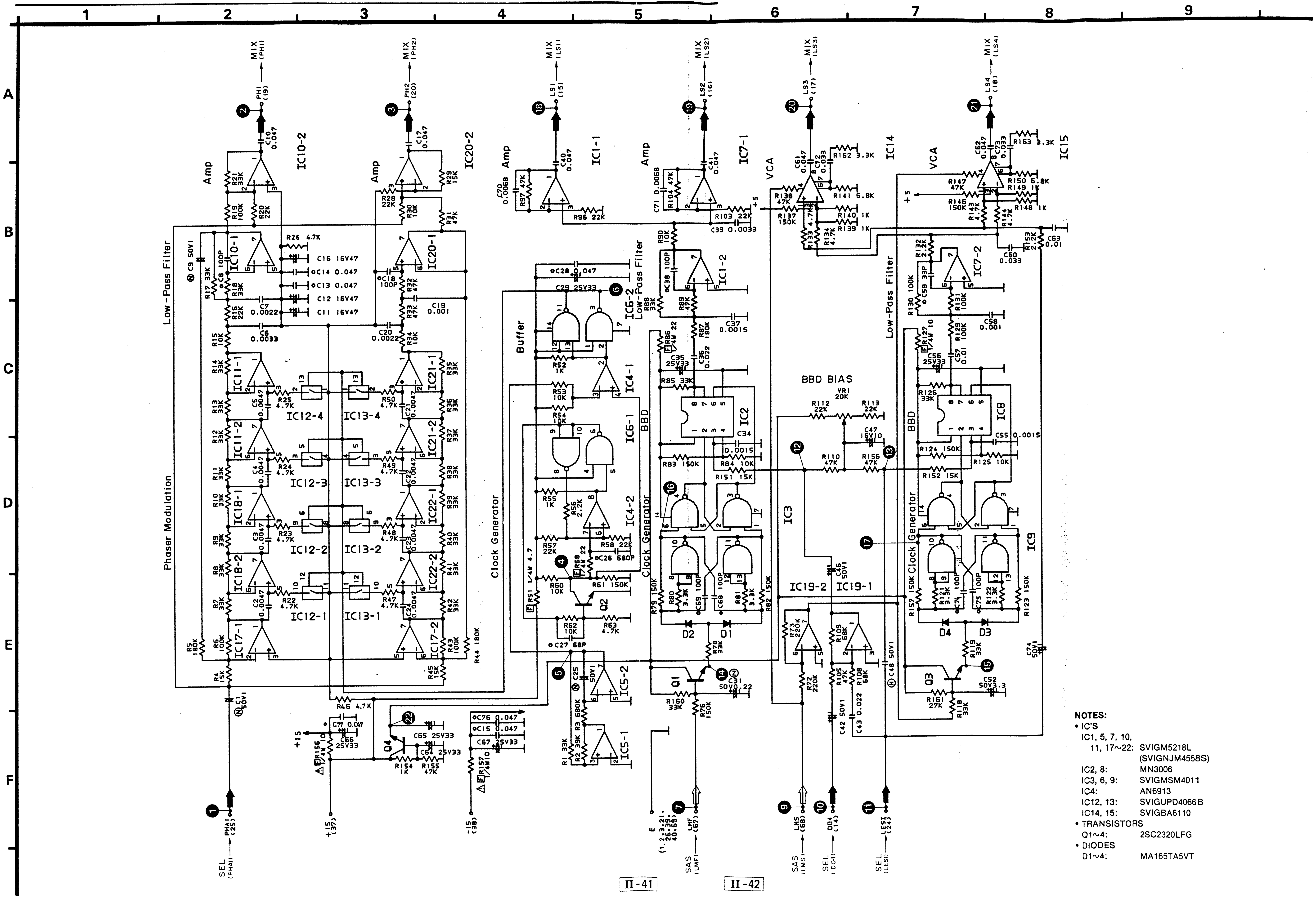
- TRANSISTORS

Q1~4: 2SC2320LFG

- DIODES

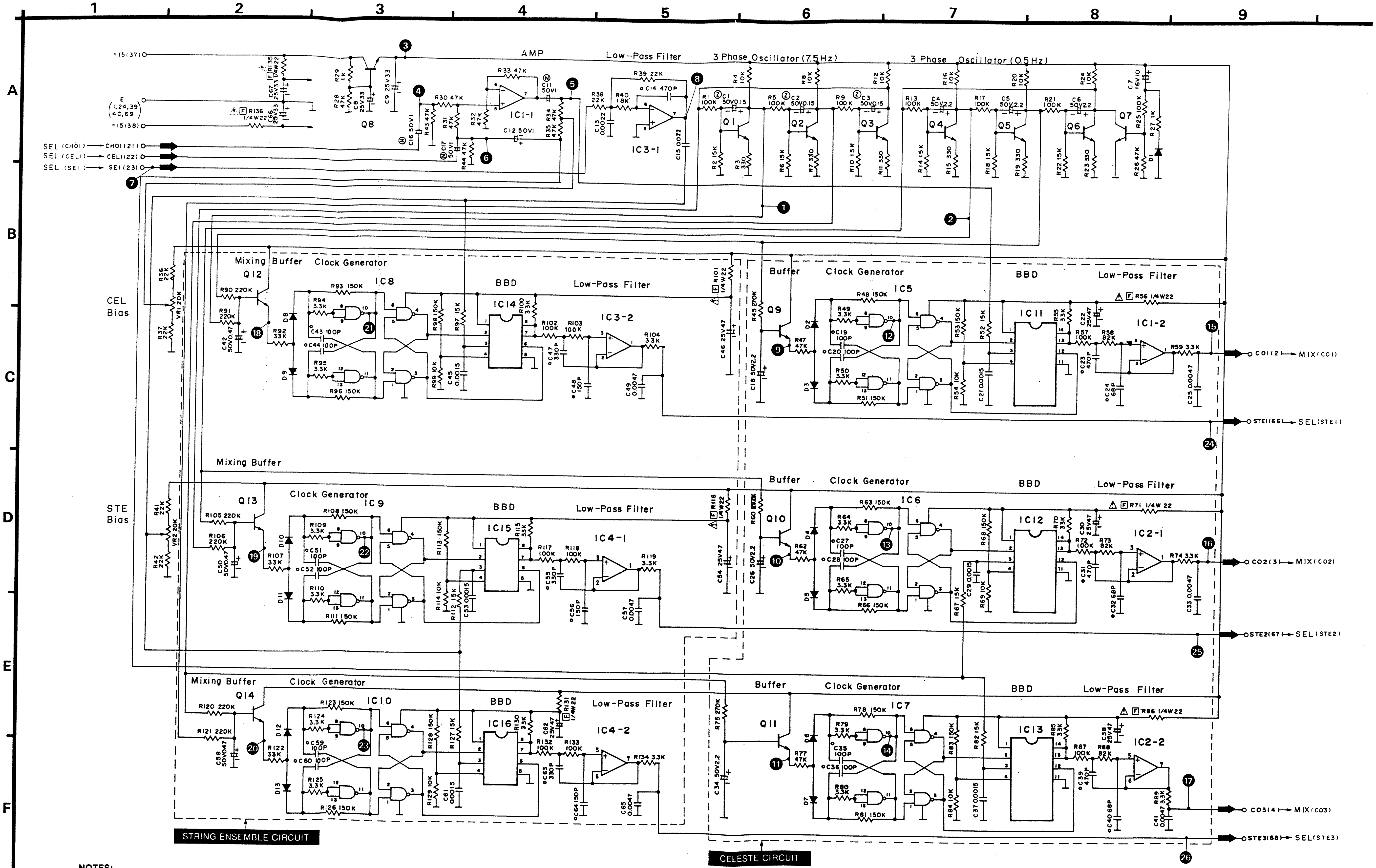
D1~4: MA165TA5VT

TREMOLO & PHASER MODULATION CIRCUIT DIAGRAM (LPM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
MIX (PH1)
PH1 (19)
MIX (PH2)
PH2 (20)
MIX (LS1)
LS1 (15)
MIX (LS2)
LS2 (16)
MIX (LS3)
LS3 (17)
MIX (LS4)
LS4 (18)
IC10-2
IC20-2
IC1-1
IC7-1
IC14
IC15
Amp
VCA
Low-Pass Filter
Phaser Modulation
Clock Generator
Buffer
BBD
BBD BIAS
IC10-1
IC20-1
IC11-1
IC11-2
IC18-1
IC18-2
IC17-1
IC17-2
IC21-1
IC21-2
IC22-1
IC22-2
IC12-1
IC12-2
IC12-3
IC12-4
IC13-1
IC13-2
IC13-3
IC13-4
IC6-1
IC6-2
IC4-1
IC4-2
IC5-1
IC5-2
IC1-2
IC7-2
IC2
IC8
IC3
IC9
IC19-1
IC19-2
Q1
Q2
Q3
Q4
D1
D2
D3
D4
VR1 20K
+5
+15
-15
SEL (PHA1)
PHA1 (25)
+15 (37)
-15 (38)
E (1,2,3,21, 26,35, 40,65)
SAS (LMF)
LMF (67)
SAS (LMS)
LMS (68)
SEL (D04)
D04 (14)
SEL (LES1)
LES1 (24)
①
②
③
④
⑤
⑥
⑦
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑
㉒

NOTES:
- IC'S
  - IC1, 5, 7, 10, 11, 17~22: SVIGM5218L (SVIGNJM4558S)
  - IC2, 8: MN3006
  - IC3, 6, 9: SVIGMSM4011
  - IC4: AN6913
  - IC12, 13: SVIGUPD4066B
  - IC14, 15: SVIGBA6110
- TRANSISTORS
  - Q1~4: 2SC2320LFG
- DIODES
  - D1~4: MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT DIAGRAM (CSM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
+15(37)
E (1,24,39 / 40,69)
-15(38)
SEL (CH01) → CH01(21)
SEL (CEL1) → CEL1(22)
SEL (SE1) → SE1(23)
AMP
Low-Pass Filter
3 Phase Oscillator (7.5Hz)
3 Phase Oscillator (0.5Hz)
Q8
IC1-1
IC3-1
Q1
Q2
Q3
Q4
Q5
Q6
Q7
CEL Bias
Mixing Buffer
Clock Generator
Q12
IC8
BBD
IC14
Low-Pass Filter
IC3-2
Buffer
Q9
IC5
IC11
IC1-2
CO1(2) → MIX(CO1)
STE1(66) → SEL(STE1)
STE Bias
Q13
IC9
IC15
IC4-1
Q10
IC6
IC12
IC2-1
CO2(3) → MIX(CO2)
STE2(67) → SEL(STE2)
Q14
IC10
IC16
IC4-2
Q11
IC7
IC13
IC2-2
CO3(4) → MIX(CO3)
STE3(68) → SEL(STE3)
STRING ENSEMBLE CIRCUIT
CELESTE CIRCUIT

NOTES:

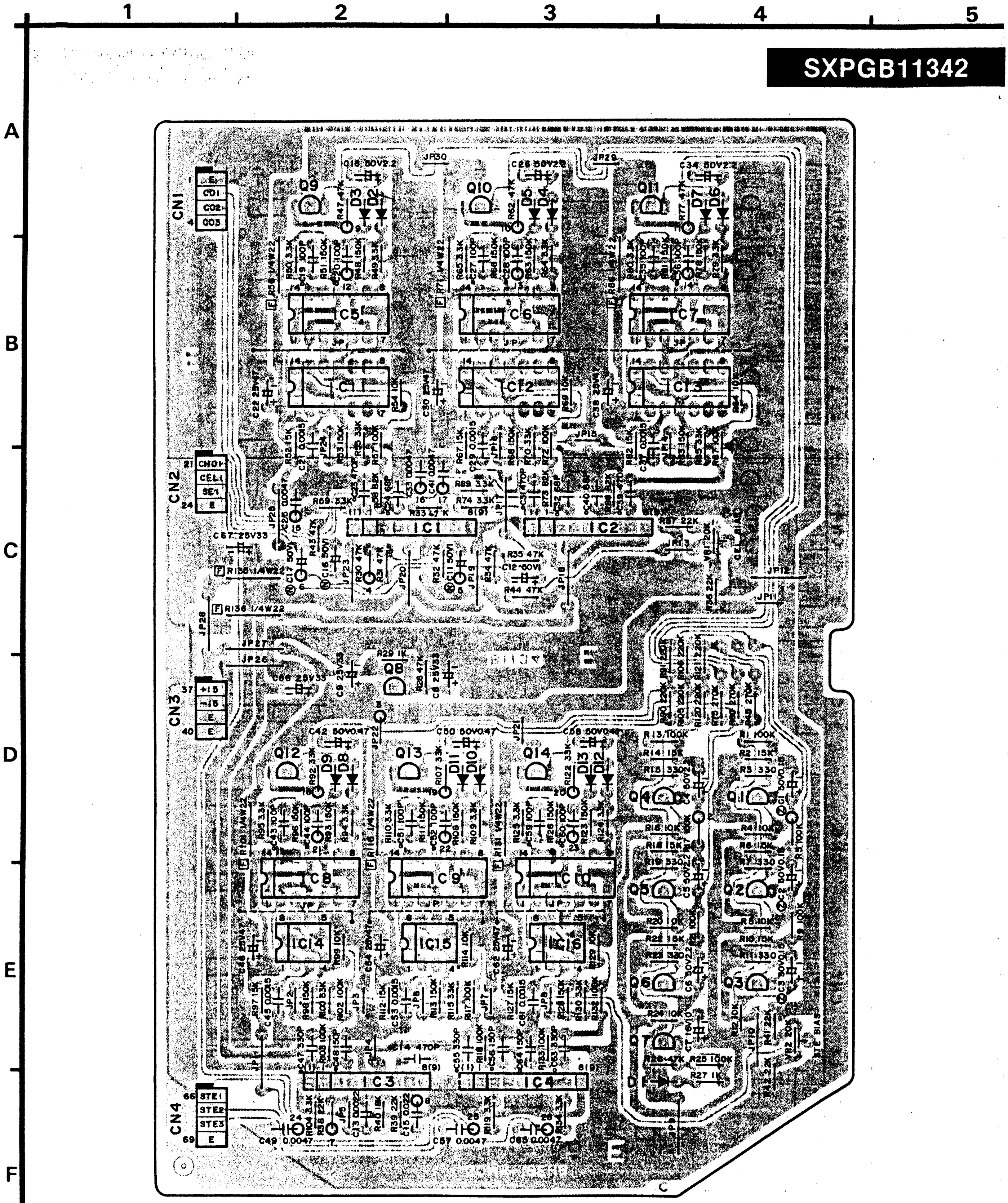
- IC'S

IC1~4:	SVIGM5218L (SVIGNJM4558S)	IC11~13:	MN3004	
IC5~10:	SVIGMSM4011	IC14~16:	MN3006	

- TRANSISTORS
  Q1~14: 2SC2320LFG
- DIODES
  D1~13: MA165TA5VT

CELESTE & STRING ENSEMBLE CIRCUIT BOARD (CSM)

SXPGB11342

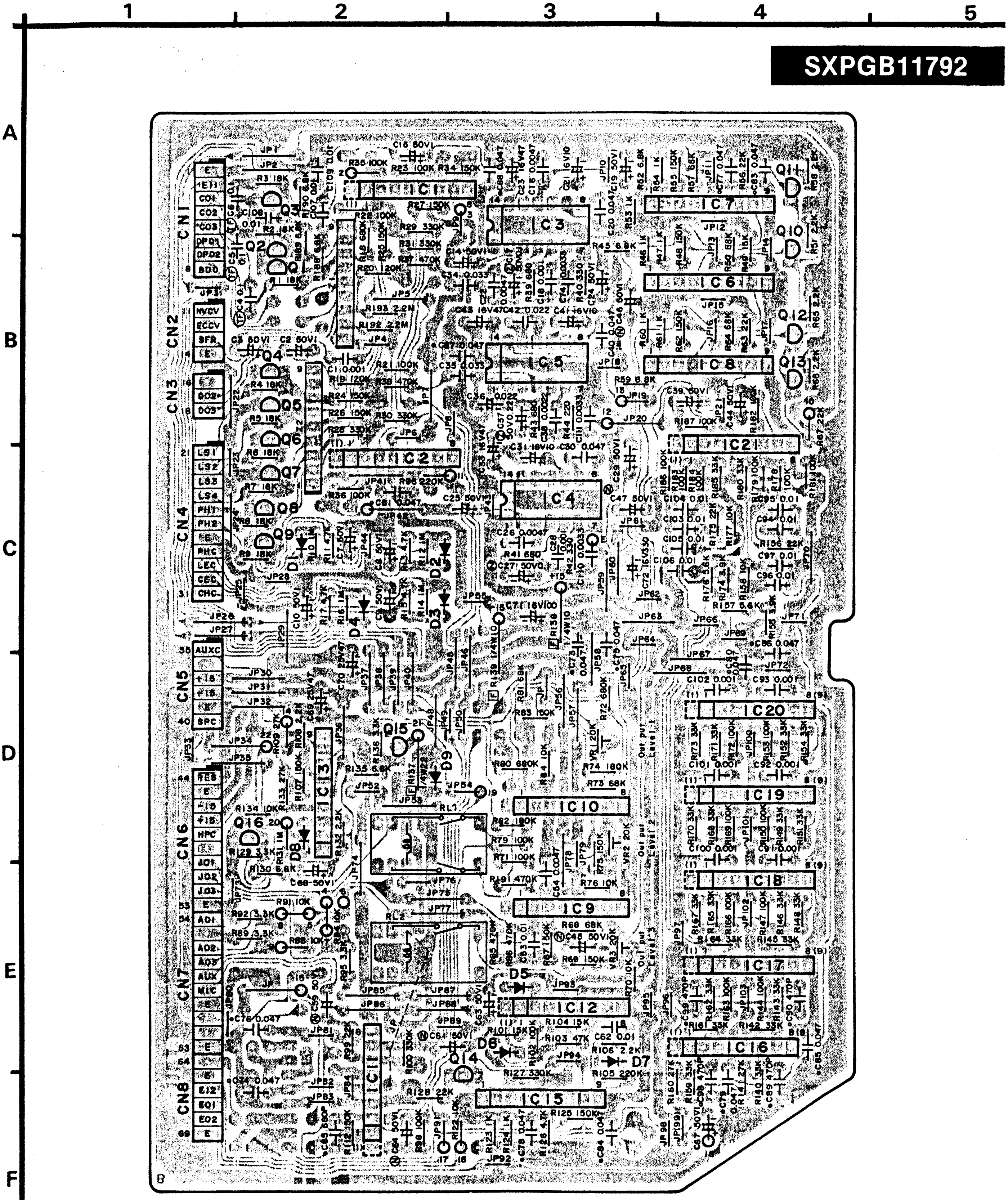

1
2
3
4
5
A
B
C
D
E
F
CN1
CO1
CO2
CO3
CN2
CHO
CEL
SE1
CN3
+15
-15
CN4
STE1
STE2
STE3
E
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
JP30
JP29
JP28
JP27
JP26
JP22
JP21
JP12
JP11
VR1 BIAS
VR2 BIAS
C

NOTES:

- IC'S
  - IC1~4: SVIGM5218L (SVIGNJM4558S)
  - IC5~10: SVIGMSM4011
  - IC11~13: MN3004
  - IC14~16: MN3006
- TRANSISTORS
  - Q1~14: 2SC2320LFG
- DIODES
  - D1~13: MA165TA5VT

MIXING CIRCUIT BOARD (MIX)

SXPGB11792


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC15
IC16
IC17
IC18
IC19
IC20
IC21
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
D1
D2
D3
D4
D5
D6
D7
D8
D9
RL1
RL2
Out put Level 1
Out put Level 2
Out put Level 3

NOTES:

- IC'S

IC1, 2, 9~12, 16~21:	SVIGM5218L (SVIGNJM4558S)
IC3~5:	SVIGLM1894N
IC6~8, 15:	SVIGBA6110
IC13:	AN6913

- TRANSISTORS

Q1~9:	2SJ40CD
Q10~16:	2SA1015GR

- DIODES

D1~9:	MA165TA5VT

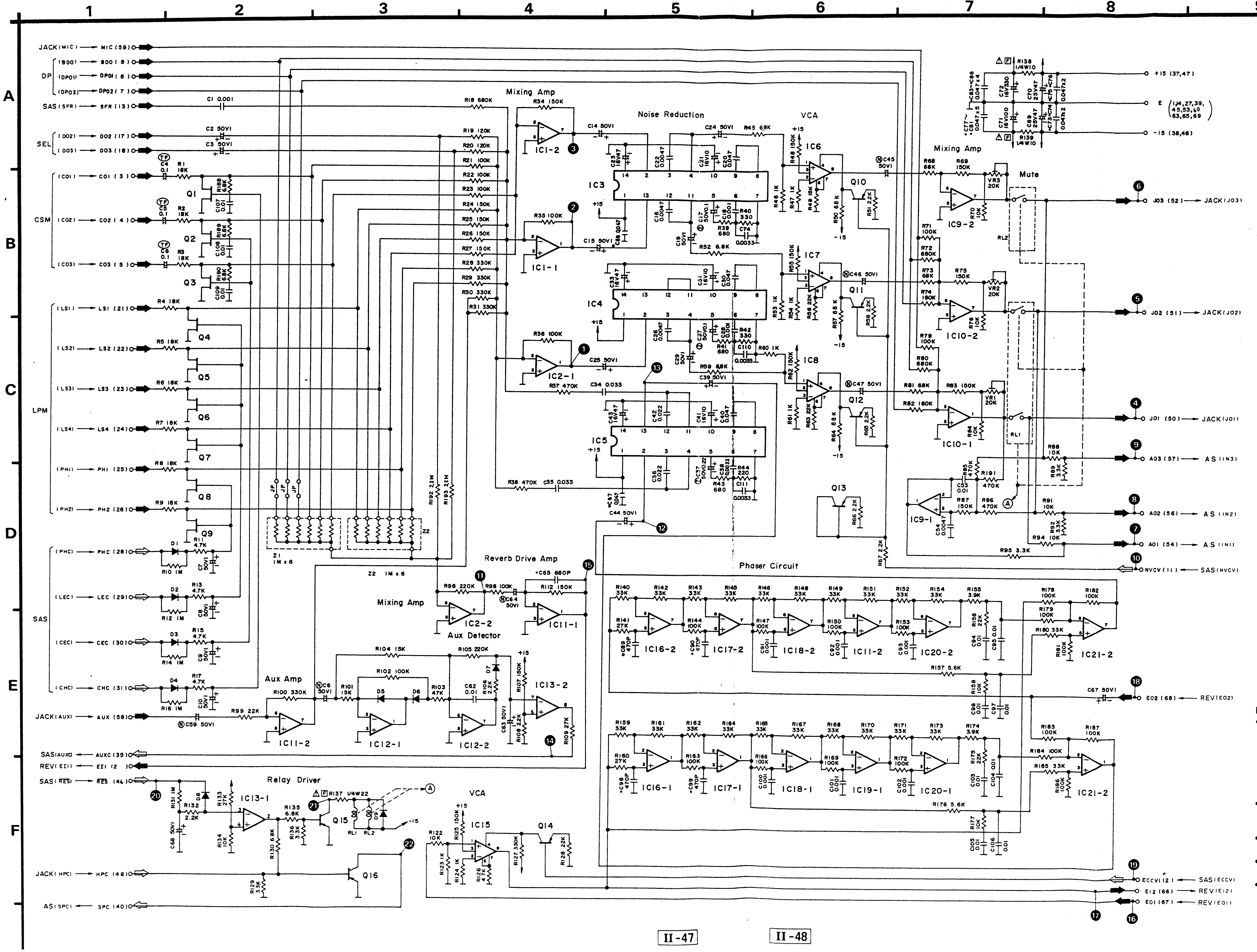
- COMPONENTS COMBINATIONS

Z1, 2:	EXBP88105MM

- RELAYS

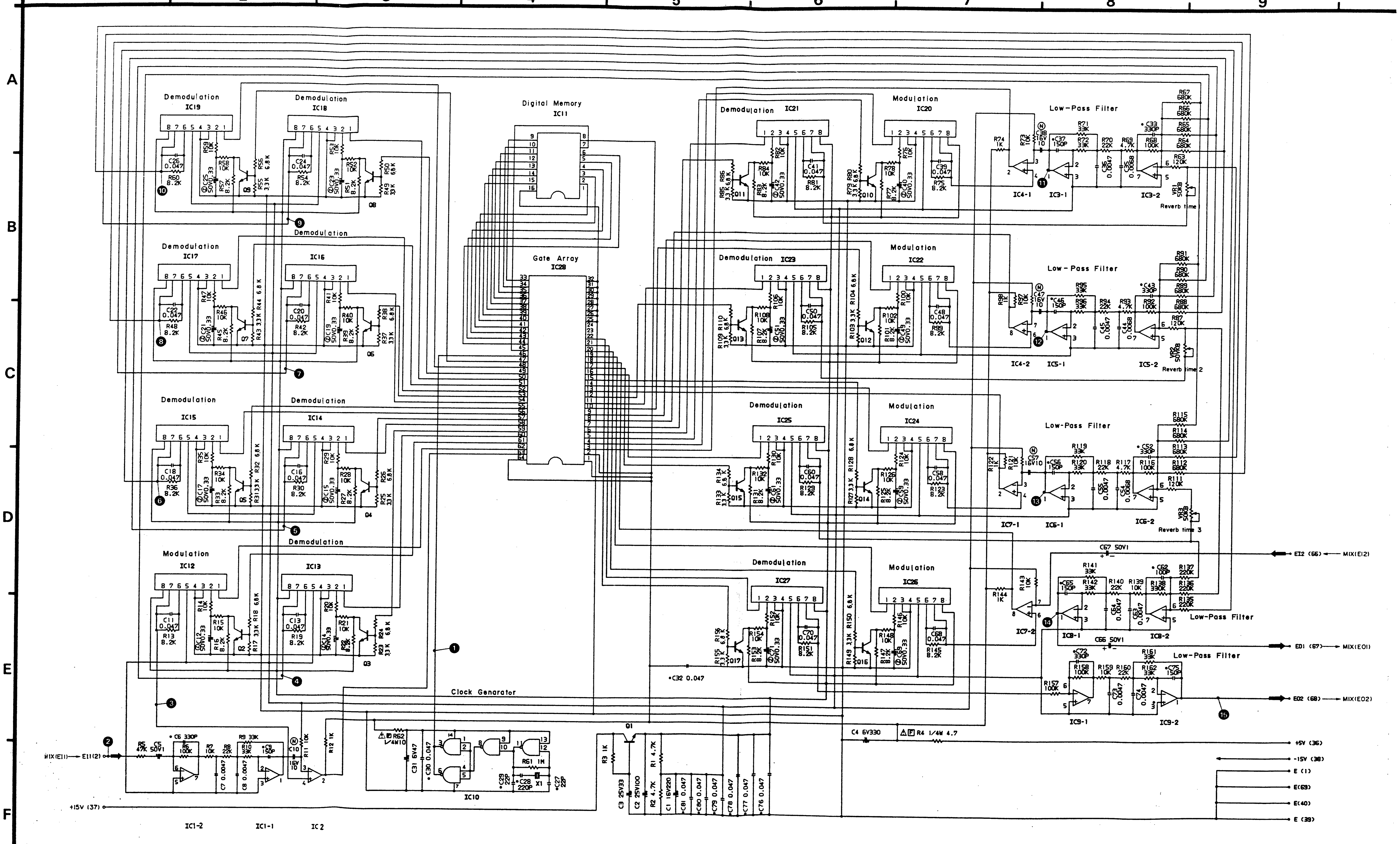
L1, 2:	SSYGMR5212S

MIXING CIRCUIT DIAGRAM (MIX)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
JACK(MIC) MIC (59)
DP (BD0) BD0 (8)
(DPO1) DPO1 (6)
(DPO2) DPO2 (7)
SAS(SFR) SFR (13)
SEL (DO2) DO2 (17)
(DO3) DO3 (18)
CSM (CO1) CO1 (3)
(CO2) CO2 (4)
(CO3) CO3 (5)
LPM (LS1) LS1 (21)
(LS2) LS2 (22)
(LS3) LS3 (23)
(LS4) LS4 (24)
(PH1) PH1 (25)
(PH2) PH2 (26)
SAS (PHC) PHC (28)
(LEC) LEC (29)
(CEC) CEC (30)
(CHC) CHC (31)
JACK(AUX) AUX (58)
SAS(AUXC) AUXC (35)
REV(EI1) EI1 (2)
SAS(RES) RES (44)
JACK(HPC) HPC (48)
AS(SPC) SPC (40)
Mixing Amp
Noise Reduction
VCA
Mixing Amp
Mute
Reverb Drive Amp
Mixing Amp
Aux Detector
Aux Amp
Phaser Circuit
Relay Driver
VCA
IC1-2
IC1-1
IC2-1
IC2-2
IC3
IC4
IC5
IC6
IC7
IC8
IC9-1
IC9-2
IC10-1
IC10-2
IC11-1
IC11-2
IC12-1
IC12-2
IC13-1
IC13-2
IC15
IC16-1
IC16-2
IC17-1
IC17-2
IC18-1
IC18-2
IC19-1
IC20-1
IC20-2
IC21-1
IC21-2
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
RL1
RL2
Z1 1M x 6
Z2 1M x 6
+15 (37,47)
E (1,14,27,39, 45,53,60 63,65,69)
-15 (38,46)
JO3 (52) JACK(JO3)
JO2 (51) JACK(JO2)
JO1 (50) JACK(JO1)
AO3 (57) AS (IN3)
AO2 (56) AS (IN2)
AO1 (54) AS (IN1)
NVCV (11) SAS(NVCV)
EO2 (68) REV(EO2)
ECCV (12) SAS(ECCV)
EI2 (66) REV(EI2)
EO1 (67) REV(EO1)

NOTES:
- IC'S
  IC1, 2, 9~12, 16~21: SVIGM5218L (SVIGNJM4558S)
  IC3~5: SVIGLM1894N
  IC6~8, 15: SVIGBA6110
  IC13: AN6913
- TRANSISTORS
  Q1~9: 2SJ40CD
  Q10~16: 2SA1015GR
- DIODES
  D1~9: MA165TA5VT
- COMPONENTS COMBINATIONS
  Z1, 2: EXBP88105M
- RELAYS
  L1, 2: SSYGMR5212S

REVERB CIRCUIT DIAGRAM (REV)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Demodulation IC19
Demodulation IC18
Digital Memory IC11
Demodulation IC21
Modulation IC20
Low-Pass Filter
IC4-1
IC3-1
IC3-2
VR1 50KB
Reverb time 1
Demodulation IC17
IC16
Gate Array IC28
Demodulation IC23
Modulation IC22
IC4-2
IC5-1
IC5-2
Reverb time 2
Demodulation IC15
Demodulation IC14
Demodulation IC25
Modulation IC24
IC7-1
IC6-1
IC6-2
Reverb time 3
Modulation IC12
IC13
Demodulation
Demodulation IC27
Modulation IC26
IC7-2
IC8-1
IC8-2
IC9-1
IC9-2
Clock Generator
IC10
X1
Q1
EI2 (66) MIX(EI2)
EO1 (67) MIX(EO1)
EO2 (68) MIX(EO2)
+5V (36)
-15V (38)
E (1)
E(63)
E(40)
E (39)
MIX(EI1) EI1(2)
+15V (37)
IC1-2
IC1-1
IC 2

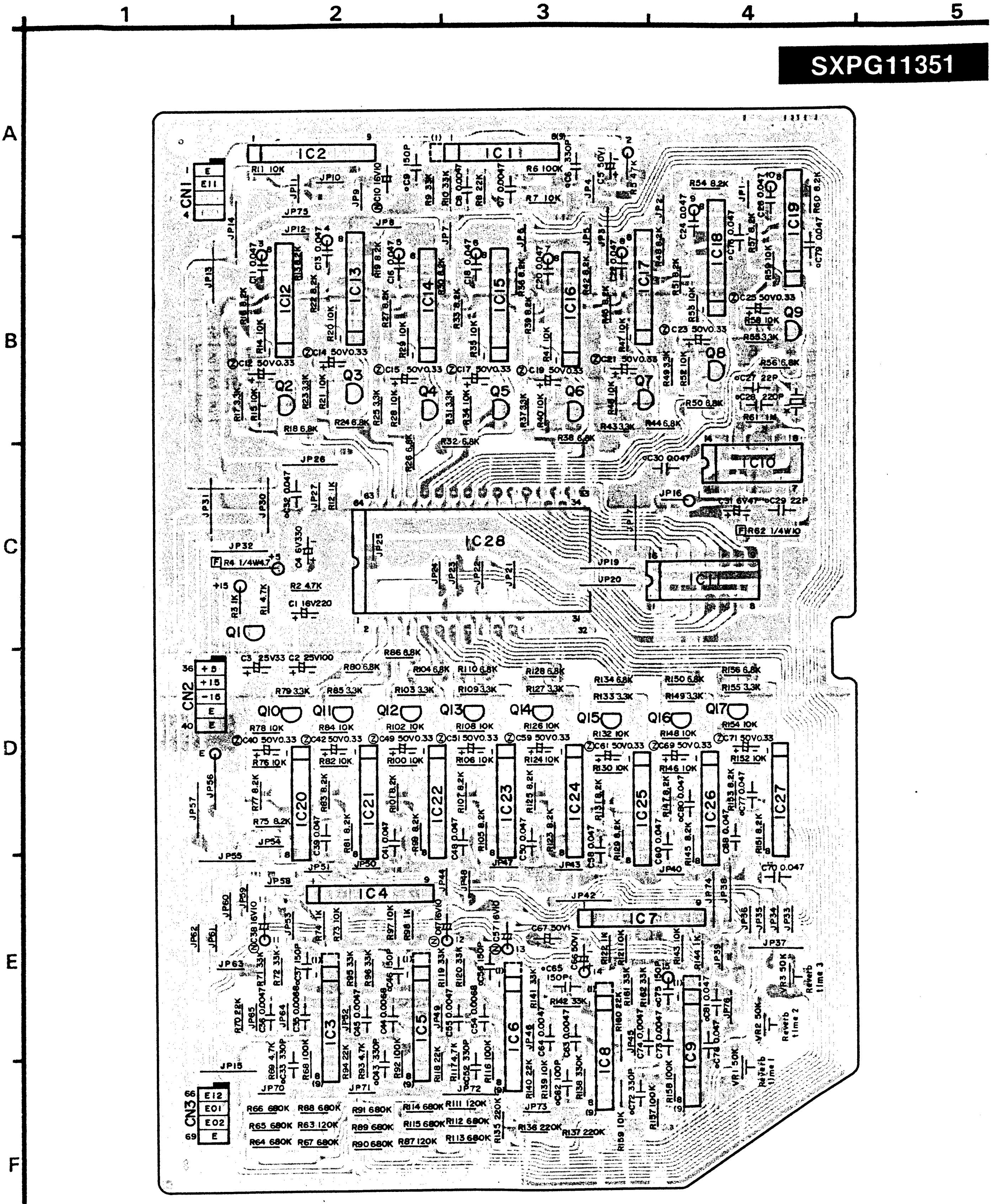
■ Precautions for servicing

IC's of part No. SVIGM5225L (IC12~IC27) are divided into 6 ranks which are marked by red, orange, yellow, green, blue and purple. In this circuit, they are used in pairs such as (IC12, 13), (IC14, 15), (IC16, 17),……(IC24, 25), (IC26, 27). So, when the IC's are replaced, take care so that those with same marks are paired.

NOTES:

- IC'S
  - IC1, 3, 5, 6, 8, 9: SVIGM5218L (SVIGNJM4558S)
  - IC2, 4, 7: AN6913
  - IC10: SVIGTC40H000
  - IC11: SVIGM5K4164
  - IC12~27: SVIGM5225L (SVIGMA7465)
  - IC28: SVIG65010022
- TRANSISTORS
  - Q1~9, 16, 17: 2SC2320LFG
  - Q10~15: 2SC1047C
- CERAMIC OSCILATOR
  - X1: SVQGCSA800MT

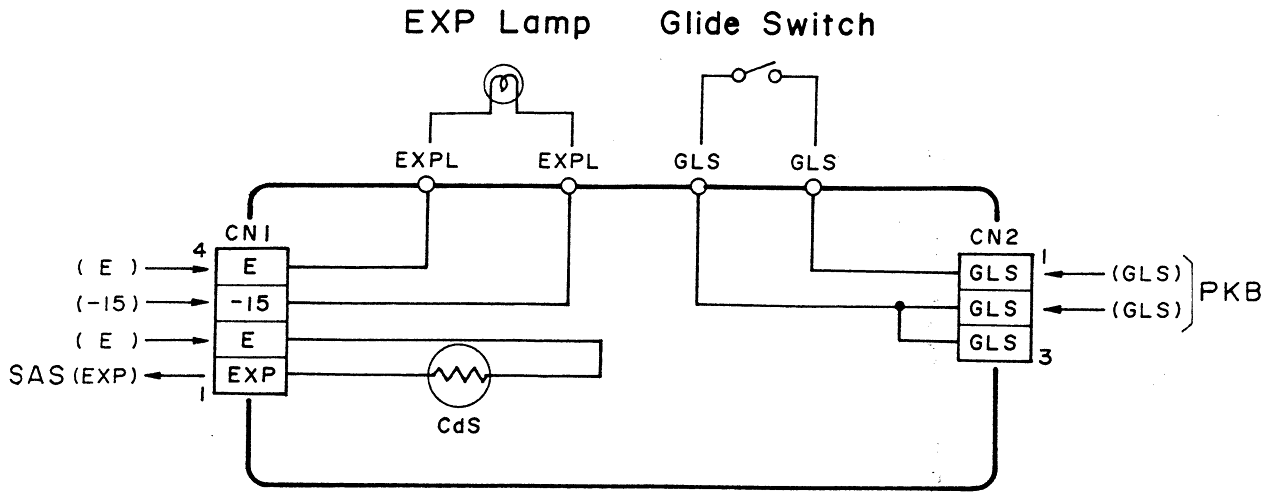
REVERB CIRCUIT BOARD (REV)


1
2
3
4
5
A
B
C
D
E
F
SXPG11351
CN1
CN2
CN3
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC28
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
Q17
+15
+5
+15
-15
E
E11
E12
E01
E02
R4 1/4W4.7
R62 1/4W10
Reverb time 1
Reverb time 2
Reverb time 3
VR1 50K
VR2 50K
VR3 50K

NOTES:

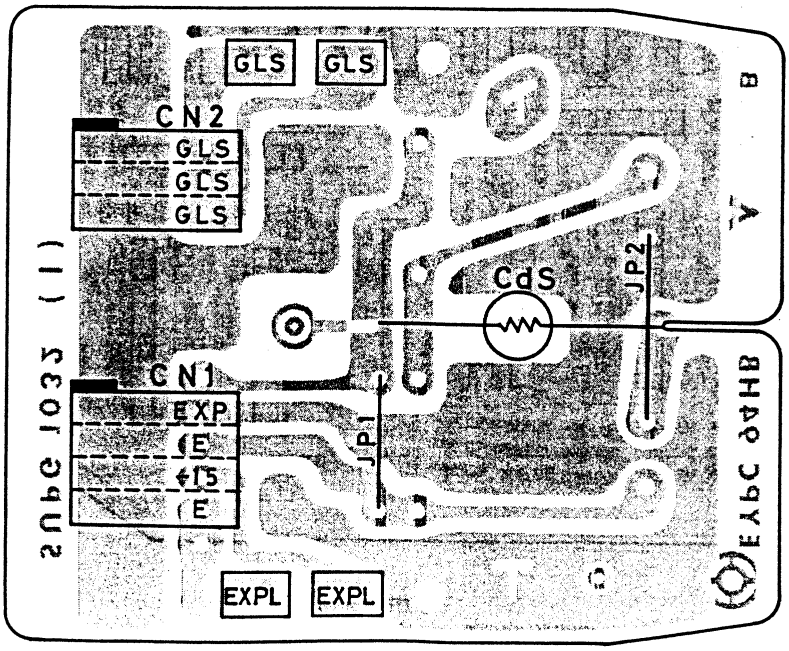
- IC'S
  - IC1, 3, 5, 6, 8, 9: SVIGM5218L (SVIGNJM4558S)
  - IC2, 4, 7: AN6913
  - IC10: SVIGTC40H000
  - IC11: SVIGM5K4164
  - IC12~27: SVIGM5225L (SVIGMA7465)
  - IC28: SVIG65010022
- TRANSISTORS
  - Q1~9, 16, 17: 2SC2320LFG
  - Q10~15: 2SC1047C
- CERAMIC OSCILATOR
  - X1: SVQGCSA800MT

EXPRESSION CIRCUIT DIAGRAM (EXP)

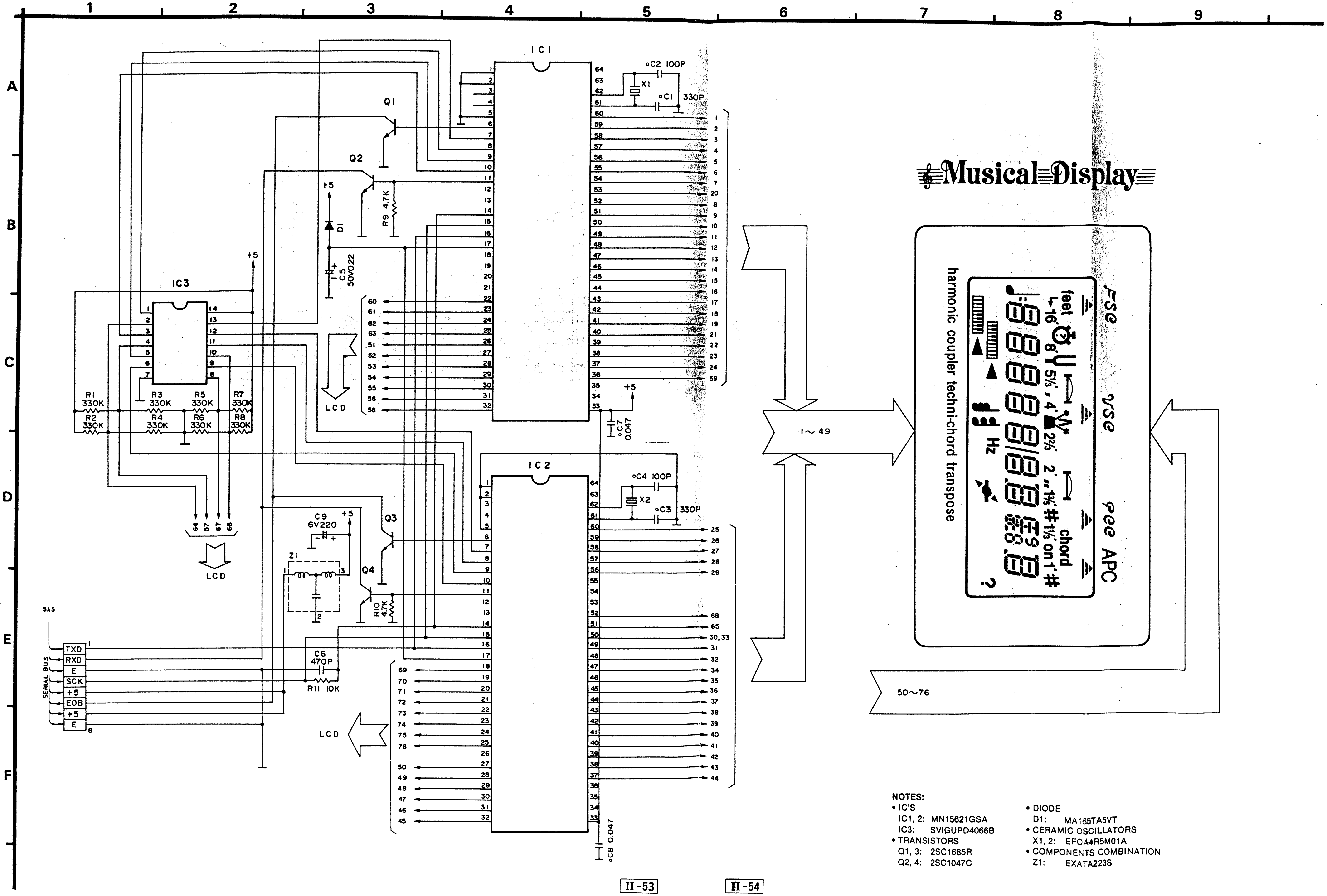

EXP Lamp
Glide Switch
EXPL
EXPL
GLS
GLS
CN1
4
E
-15
E
EXP
1
(E)
(-15)
(E)
SAS (EXP)
CdS
CN2
1
GLS
GLS
GLS
3
(GLS)
(GLS)
PKB

EXPRESSION CIRCUIT BOARD (EXP)

SXPG10322

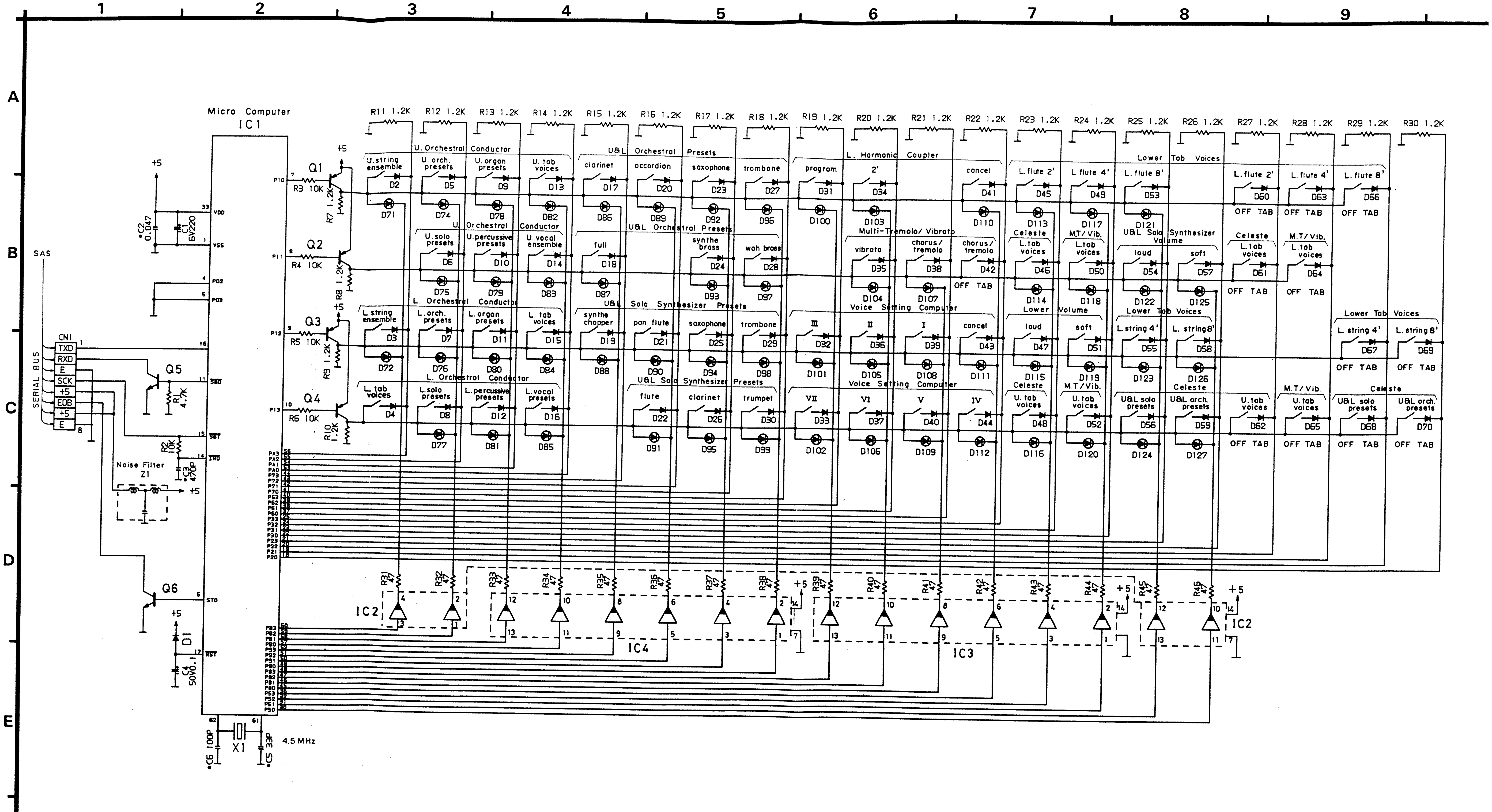

GLS
GLS
CN2
GLS
GLS
GLS
B
A
CdS
JP2
CN1
EXP
E
-15
E
JP1
EXPL
EXPL

MUSICAL DISPLAY CIRCUIT DIAGRAM (MD)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
IC1
IC2
IC3
Q1
Q2
Q3
Q4
D1
+5
R9 4.7K
R10 4.7K
C5 50V0.22
C2 100P
C1 330P
X1
C4 100P
C3 330P
X2
C7 0.047
C8 0.047
C9 6V220
Z1
C6 470P
R11 10K
R1 330K
R2 330K
R3 330K
R4 330K
R5 330K
R6 330K
R7 330K
R8 330K
LCD
SAS
SERIAL BUS
TXD
RXD
E
SCK
+5
EOB
+5
E
1~49
50~76
Musical Display
harmonic coupler techni-chord transpose
feet
L-16'
8'
5⅓'
4'
2⅔'
2'
1⅗'
1⅓'
1'
chord
on
Hz
Fse
Vse
Pee
APC
?

NOTES:
- IC'S
  - IC1, 2: MN15621GSA
  - IC3: SVIGUPD4066B
- TRANSISTORS
  - Q1, 3: 2SC1685R
  - Q2, 4: 2SC1047C
- DIODE
  - D1: MA165TA5VT
- CERAMIC OSCILLATORS
  - X1, 2: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

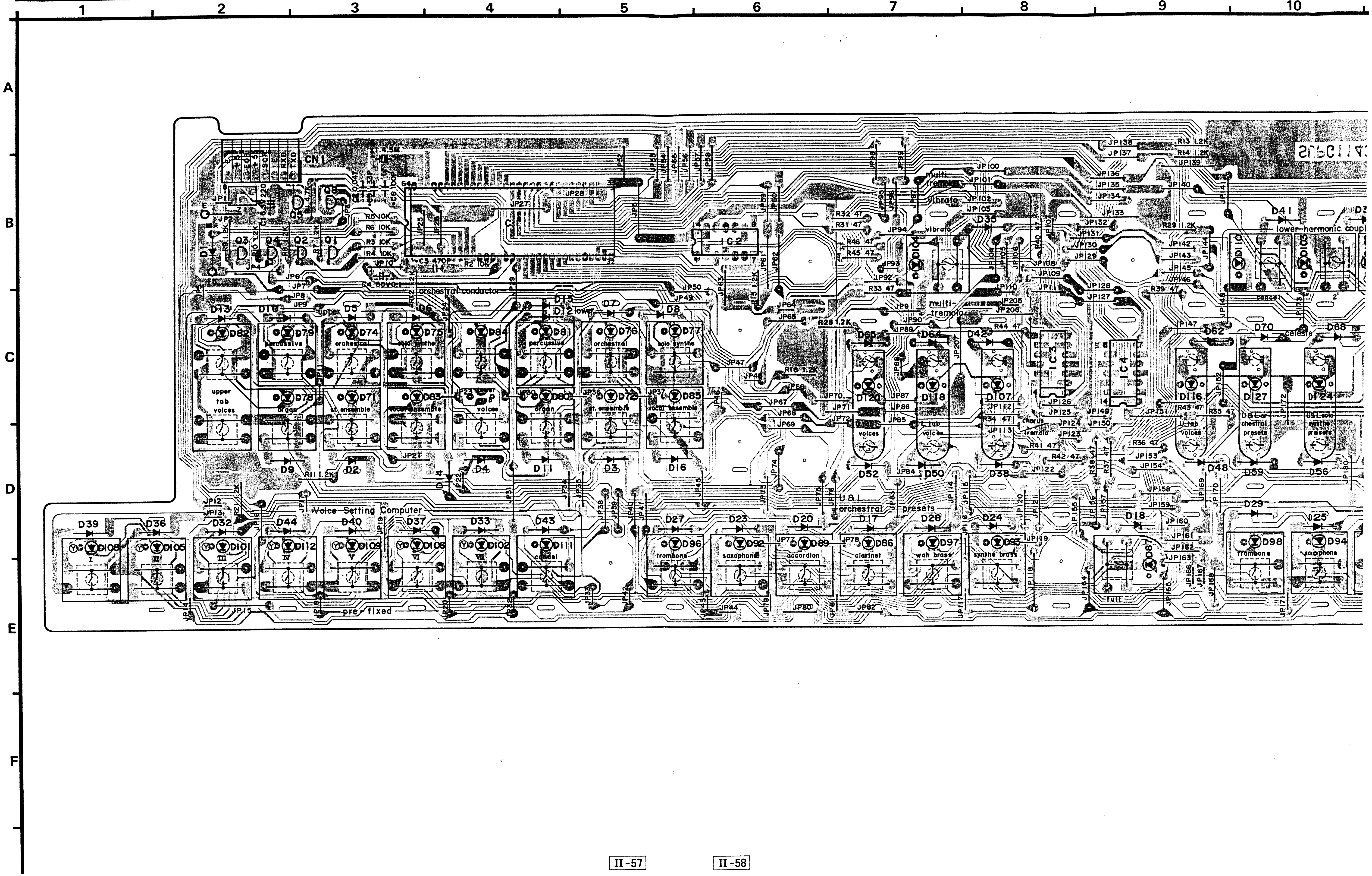
U. CONTROL PANEL RIGHT CIRCUIT DIAGRAM (CPR)

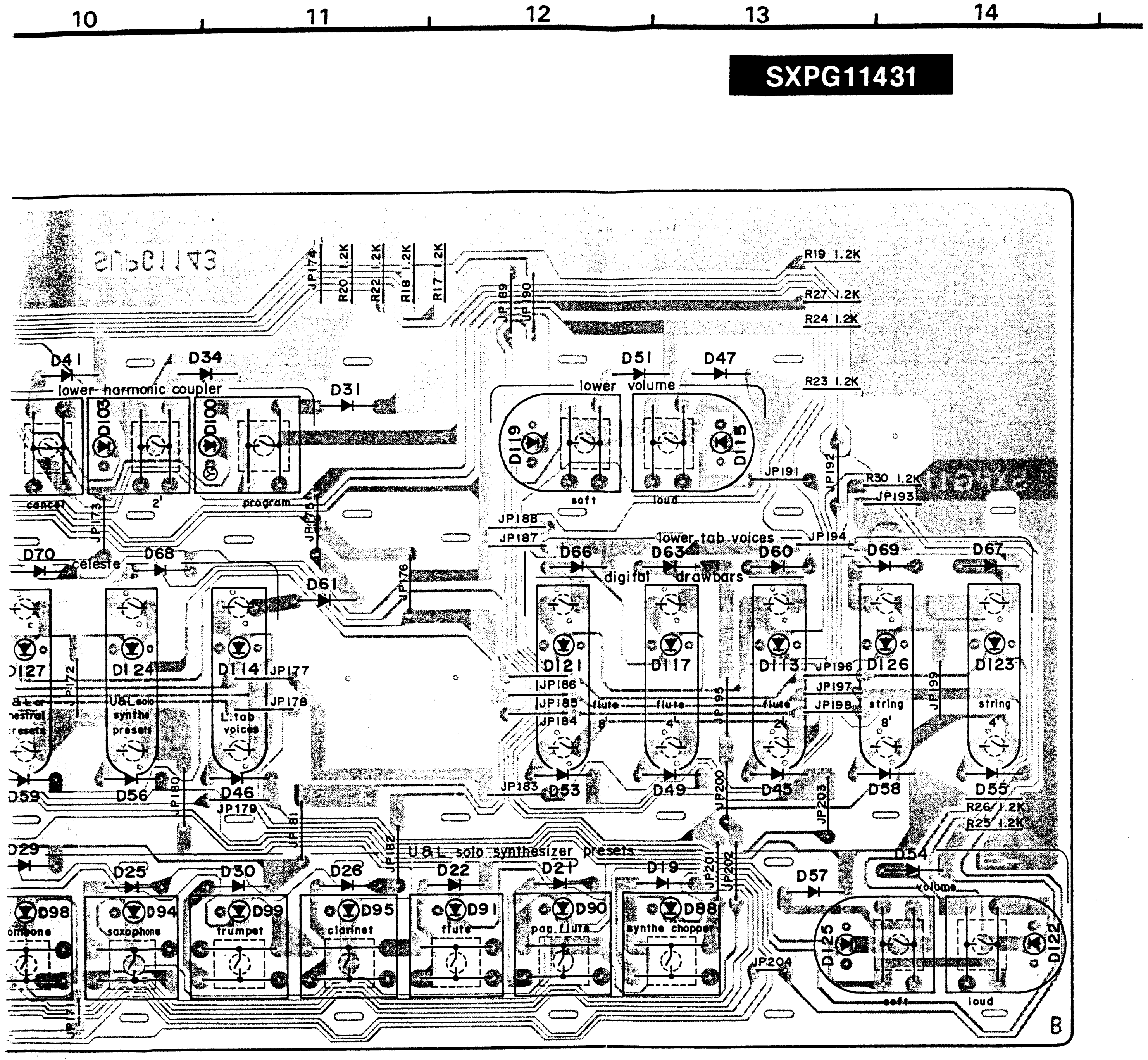


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Q1
Q2
Q3
Q4
Q5
Q6
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
R1 4.7K
R2 10K
C1 6V220
C2 0.047
C3 470P
C4 50V0.1
C5 100P
C5 33P
D1
X1
4.5 MHz
Noise Filter
Z1
VDD
VSS
PO2
PO3
SBO
SBT
IRQ
STO
RST
P10
P11
P12
P13
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R27 1.2K
R28 1.2K
R29 1.2K
R30 1.2K
U. Orchestral Conductor
U&L Orchestral Presets
L. Harmonic Coupler
Lower Tab Voices
U. string ensemble
U. orch. presets
U. organ presets
U. tab voices
clarinet
accordion
saxophone
trombone
program
2'
cancel
L. flute 2'
L. flute 4'
L. flute 8'
OFF TAB
U. solo presets
U. percussive presets
U. vocal ensemble
full
synthe brass
wah brass
U&L Orchestral Presets
Multi-Tremolo/ Vibrato
vibrato
chorus/ tremolo
Celeste
L. tab voices
M.T/Vib.
U&L Solo Synthesizer Volume
loud
soft
L. Orchestral Conductor
U&L Solo Synthesizer Presets
Voice Setting Computer
Lower Volume
Lower Tab Voices
L. string ensemble
L. orch. presets
L. organ presets
L. tab voices
synthe chopper
pan flute
III
II
I
L. string 4'
L. string 8'
L. solo presets
L. percussive presets
L. vocal presets
flute
trumpet
VII
VI
V
IV
U. tab voices
U&L solo presets
U&L orch. presets
IC2
IC3
IC4
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
R43 47
R44 47
R45 47
R46 47

NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2~4: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~70: MA150IR
  - D100~102, 105, 106, 108, 109, 112: SEL2710KLFM1 (Yellow)
  - D71, 72, 74~99, 103, 104, 107, 110, 111, 113~127: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

U. CONTROL PANEL RIGHT CIRCUIT BOARD (CPR)

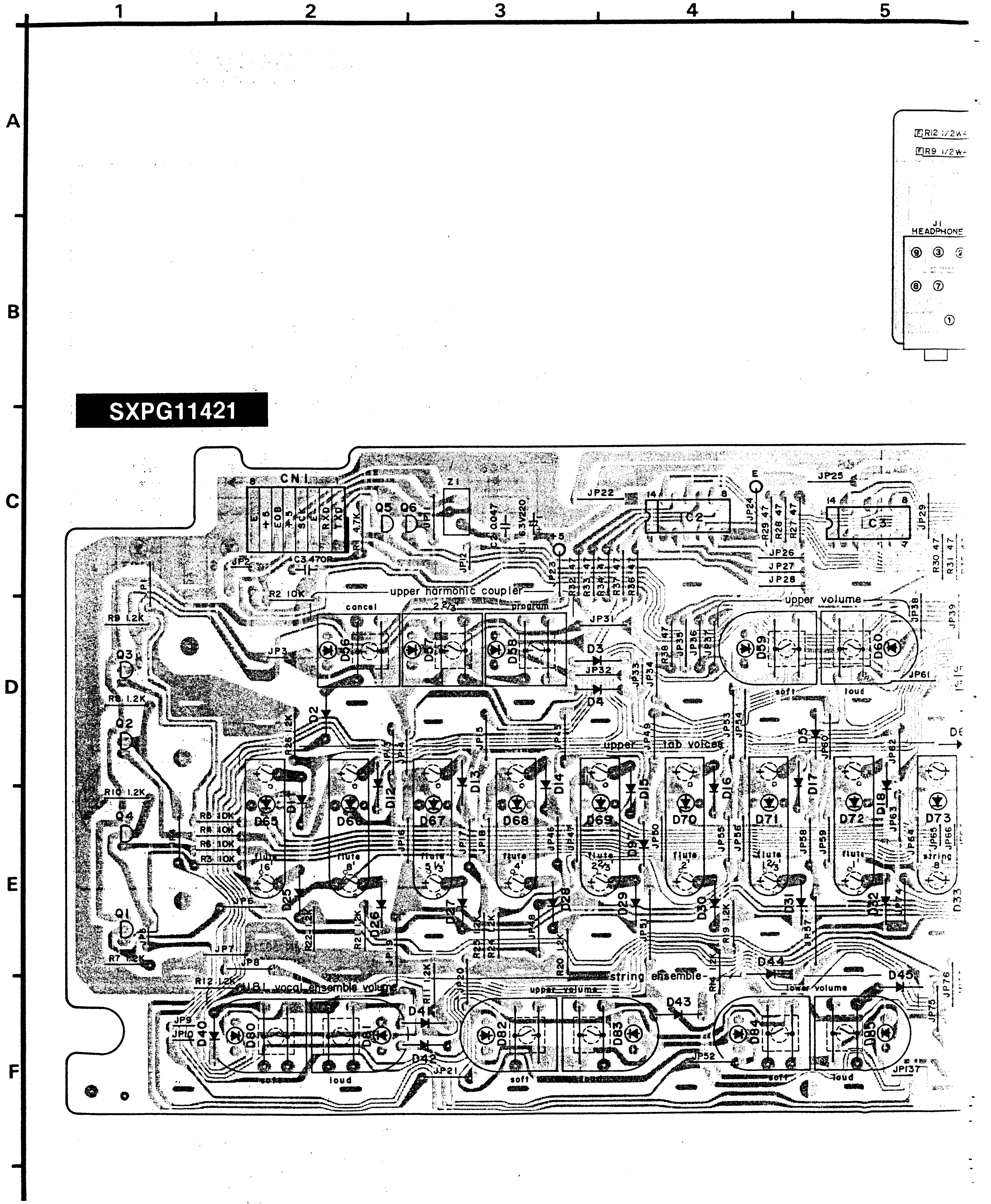

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
CN1
IC2
IC3
IC4
Q1
Q2
Q3
Q4
Q5
Q6
orchestral conductor
upper
lower
upper tab voices
percussive
orchestral
solo synthe
organ
st. ensemble
vocal ensemble
lower voices
Voice Setting Computer
pre fixed
I
II
III
IV
V
VI
VII
cancel
U&L orchestral presets
trombone
saxophone
accordion
clarinet
wah brass
synthe brass
full
multi tremolo
vibrato
chorus
tremolo
L tab voices
U tab voices
U&L orchestral presets
U&L solo synthe presets
lower harmonic coupler
celeste
multi-tremolo
D1
D2
D3
D4
D5
D6
D7
D8
D9
D11
D12
D13
D14
D15
D16
D17
D18
D20
D23
D24
D25
D27
D28
D29
D32
D33
D35
D36
D37
D38
D39
D40
D41
D42
D43
D44
D48
D50
D52
D56
D59
D62
D64
D65
D68
D70
D71
D72
D73
D74
D75
D76
D77
D78
D79
D80
D81
D82
D83
D84
D85
D86
D87
D89
D92
D93
D94
D96
D97
D98
D101
D102
D103
D104
D105
D106
D107
D108
D109
D110
D111
D112
D116
D118
D120
D124
D127
R1 4.5M
R2 10K
R3 10K
R4 10K
R5 10K
R6 10K
R9 1.2K
R10 1.2K
R11 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R28 1.2K
R29 1.2K
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R39 47
R41 47
R42 47
R43 47
R44 47
R45 47
R46 47
C3 470P
C4 50V0.1
JP1
JP2
JP5
JP6
JP7
JP8
JP9
JP10
JP12
JP13
JP14
JP15
JP21
JP22
JP23
JP25
JP27
JP28
JP30
JP36
JP37
JP44
JP47
JP48
JP49
JP50
JP52
JP64
JP65
JP67
JP68
JP69
JP70
JP71
JP72
JP77
JP78
JP80
JP82
JP84
JP85
JP86
JP87
JP89
JP90
JP91
JP92
JP93
JP94
JP100
JP101
JP102
JP103
JP108
JP109
JP110
JP111
JP112
JP113
JP119
JP122
JP123
JP124
JP125
JP126
JP127
JP128
JP129
JP130
JP131
JP132
JP133
JP134
JP135
JP136
JP137
JP138
JP139
JP140
JP142
JP143
JP145
JP146
JP147
JP149
JP150
JP151
JP153
JP154
JP158
JP159
JP160
JP161
JP162
JP163
JP205
JP206


10
11
12
13
14
SXPG11431
lower harmonic coupler
cancel
2'
program
lower volume
soft
loud
lower tab voices
digital
drawbars
celeste
UBL solo synthe presets
L.tab voices
flute
4'
2'
string
8'
UBL solo synthesizer presets
saxophone
trumpet
clarinet
flute
pan flute
synthe chopper
volume
soft
loud
B

NOTES:

• IC'S	
IC1:	MN15621GSA
IC2~4:	SVIGM53217
• TRANSISTORS	
Q1~4:	2SA830B
Q5, 6:	2SC1047C
• DIODES	
D1~70:	MA150IR
D100~102, 105, 106, 108, 109, 112:	SEL2710KLFM1 (Yellow)
D71, 72, 74~99, 103, 104, 107, 110, 111, 113~127:	SEL2210SLFM1 (Red)
• CERAMIC OSCILLATOR	
X1:	EFOA4R5M01A
• COMPONENTS COMBINATION	
Z1:	EXATA223S

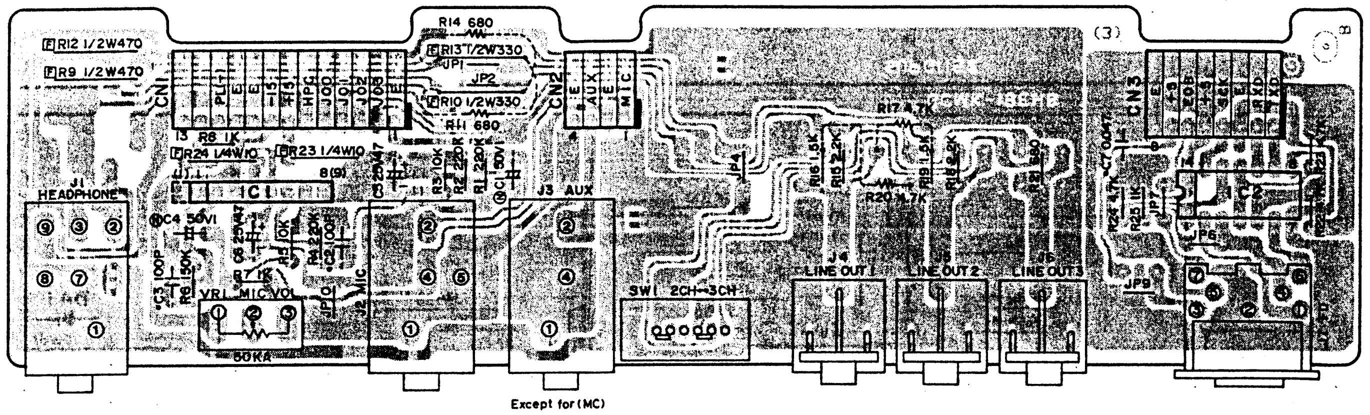
U. CONTROL PANEL LEFT CIRCUIT BOARD (CPL)

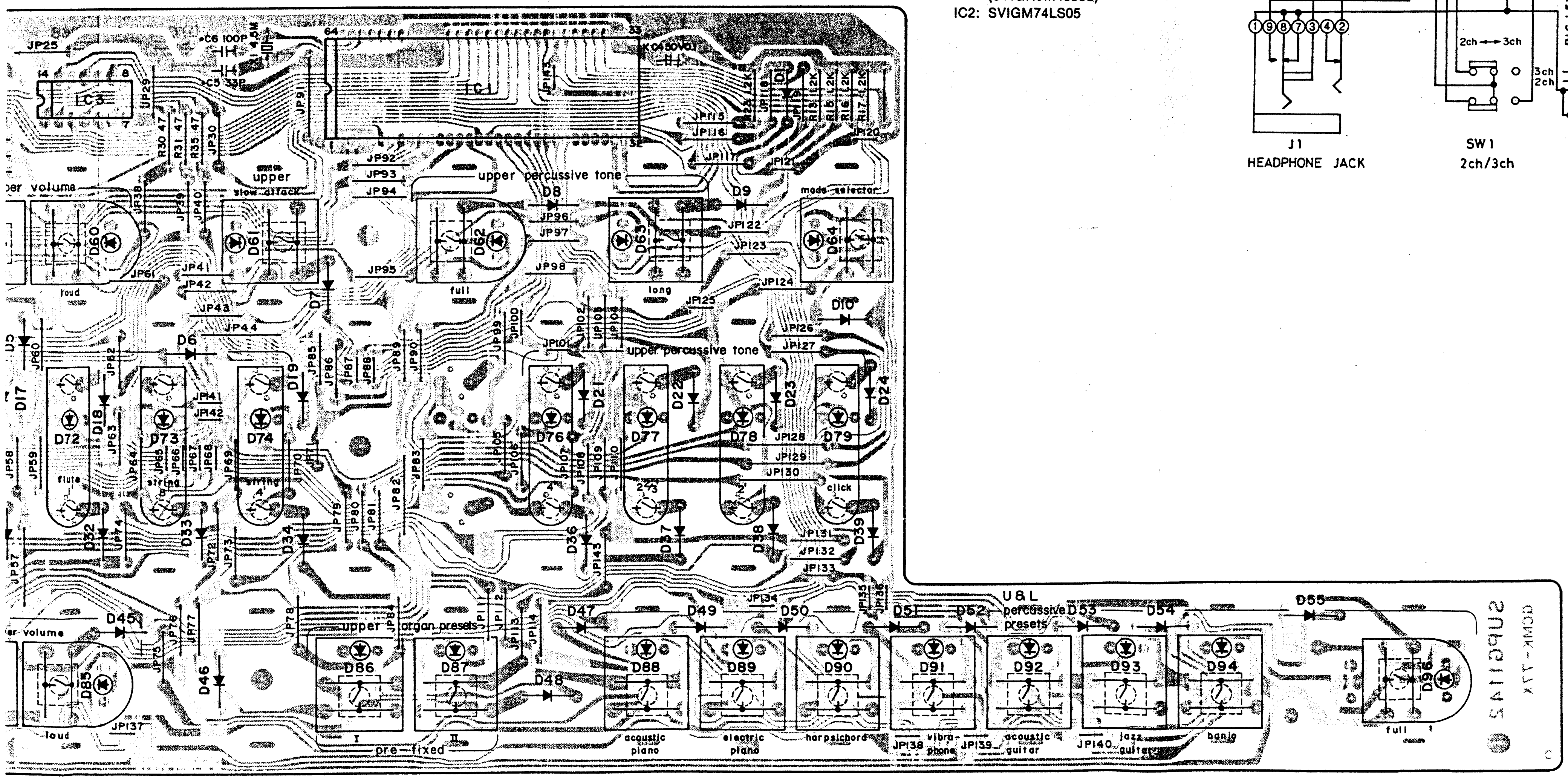

1
2
3
4
5
A
B
C
D
E
F
SXPG11421
J1 HEADPHONE
CN1
upper harmonic coupler
cancel
2 2/3
program
upper volume
soft
loud
upper tab voices
flute
8'
5 1/3
4'
2 2/3
2'
string
string ensemble
UBL vocal ensemble volume
upper volume
lower volume
soft
loud

JACK CIRCUIT BOARD (JACK)

Products for [MC] only.

SXPG11522 **SXPG11524**

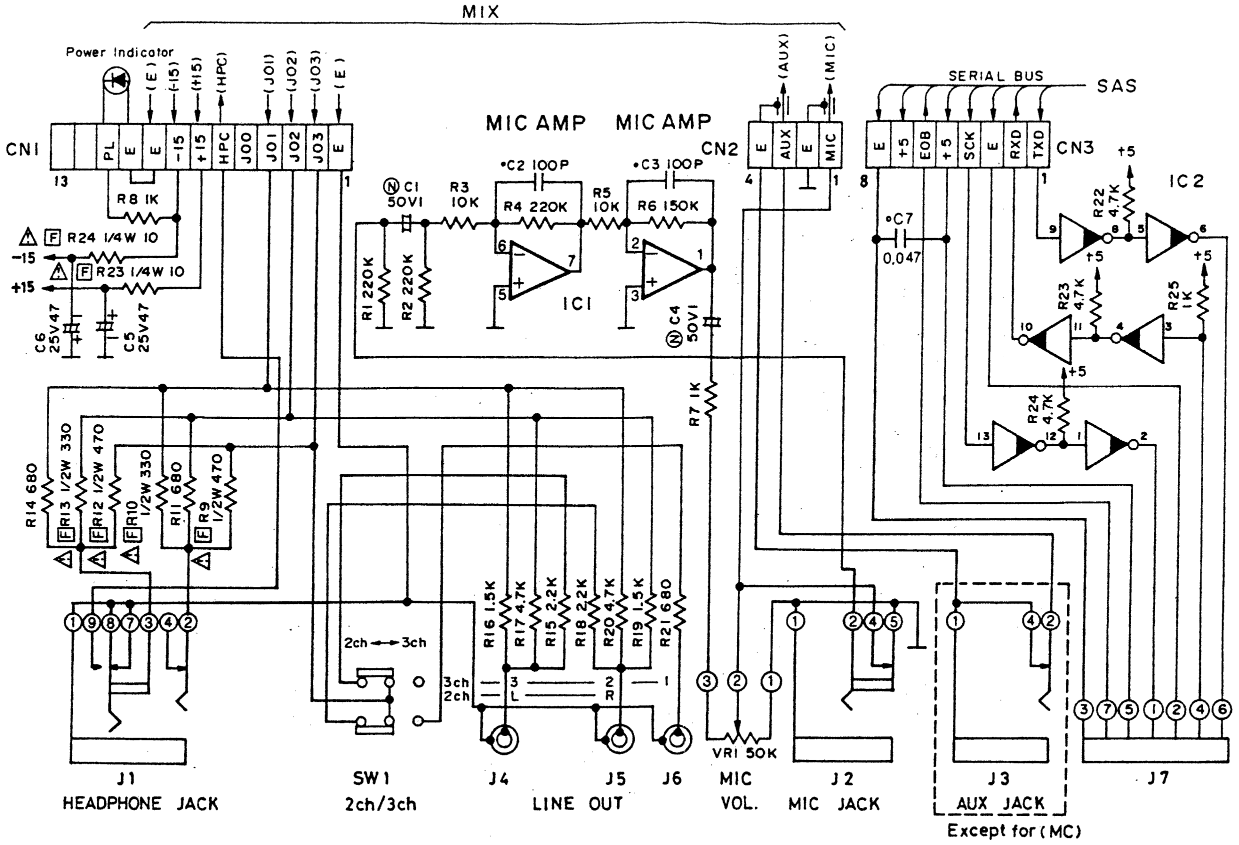

R12 1/2W470
R9 1/2W470
R14 680
R13 1/2W330
R10 1/2W330
R11 680
JP1
JP2
CN1
CN2
CN3
R8 1K
R24 1/4W10
R23 1/4W10
IC1
HEADPHONE
J1
J2
J3 AUX
MIC VOL
VR1
50KA
SW1 2CH-3CH
LINE OUT 1
LINE OUT 2
LINE OUT 3
R17 4.7K
R20 4.7K
IC2
Except for (MC)


JP25
IC3
C6 100P
C5 33P
IC1
JP29
JP30
upper
upper percussive tone
slow attack
mode selector
D8
D9
D10
D60
D61
D62
D63
D64
loud
full
long
JP41
JP42
JP43
JP44
D6
D7
upper percussive tone
D17
D18
D19
D22
D23
D24
D72
D73
D74
D76
D77
D78
D79
flute
string
string
click
D32
D33
D34
D36
D37
D38
D39
U&L percussive presets
D45
D46
D47
D48
D49
D50
D51
D52
D53
D54
D55
D56
volume
upper organ presets
D85
D86
D87
D88
D89
D90
D91
D92
D93
D94
loud
I
II
pre-fixed
acoustic piano
electric piano
harpsichord
vibra-phone
acoustic guitar
jazz guitar
banjo
full
SUPG1142
GCMK-77X

NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2, 3: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~19, 21~34, 36~55, 97: MA150IR
  - D58, 86, 87: SEL2710KLFMF1 (Yellow)
  - D56, 57, 59~74, 76~85, 88~94, 96: SEL2210SLFMF1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

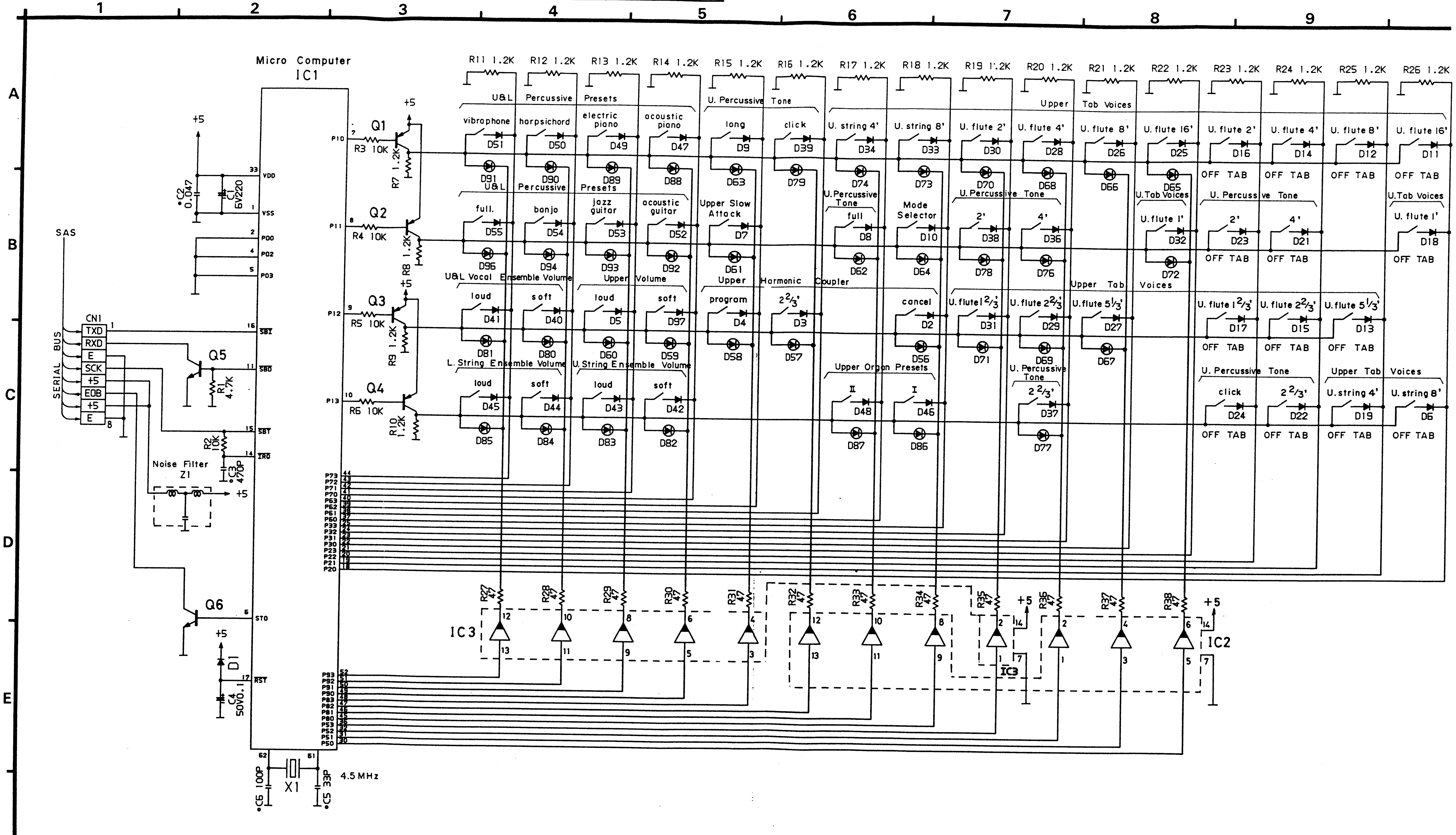
NOTES:
- IC'S
  - IC1: SVIGM5218L (SVIGNJM4558S)
  - IC2: SVIGM74LS05

JACK CIRCUIT DIAGRAM (JACK)


MIX
Power Indicator
CN1
PL
E
-15
+15
HPC
J00
J01
J02
J03
MIC AMP
MIC AMP
C2 100P
C3 100P
C1 50V1
R3 10K
R4 220K
R5 10K
R6 150K
IC1
R1 220K
R2 220K
C4 50V1
R7 1K
R8 1K
R24 1/4W 10
R23 1/4W 10
C6 25V47
C5 25V47
CN2
AUX
MIC
SERIAL BUS
SAS
CN3
E08
SCK
RXD
TXD
C7 0.047
IC2
R22 4.7K
R23 4.7K
R24 4.7K
R25 1K
R14 680
R13 1/2W 330
R12 1/2W 470
R10 1/2W 330
R11 680
R9 1/2W 470
R16 1.5K
R17 4.7K
R15 2.2K
R18 2.2K
R20 4.7K
R19 1.5K
R21 680
2ch 3ch
VR1 50K
J1 HEADPHONE JACK
SW1 2ch/3ch
J4
J5 LINE OUT
J6
MIC VOL.
J2 MIC JACK
J3 AUX JACK
Except for (MC)
J7

NOTES:
- IC'S
  - IC1: SVIGM5218L (SVIGNJM4558S)
  - IC2: SVIGM74LS05

U. CONTROL PANEL LEFT CIRCUIT DIAGRAM (CPL)



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A
B
C
D
E
F
Micro Computer
IC1
VDD
VSS
P00
P02
P03
SBI
SBO
SBT
IRQ
STO
RST
P10
P11
P12
P13
P73
P72
P71
P70
P63
P62
P61
P60
P33
P32
P31
P30
P23
P22
P21
P20
P93
P92
P91
P90
P83
P82
P81
P80
P53
P52
P51
P50
+5
C2 0.047
C1 6V220
SAS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
SERIAL BUS
Q5
R1 4.7K
R2 10K
C3 470P
Noise Filter
Z1
Q6
D1
C4 50V0.1
C5 100P
X1
C5 33P
4.5MHz
Q1
Q2
Q3
Q4
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
U&L
Percussive
Presets
U. Percussive Tone
Upper
Tab Voices
vibraphone
harpsichord
electric piano
acoustic piano
long
click
U. string 4'
U. string 8'
U. flute 2'
U. flute 4'
U. flute 8'
U. flute 16'
U. flute 2'
U. flute 4'
U. flute 8'
U. flute 16'
OFF TAB
U. Tab Voices
U. flute 1'
U. Percussive Tone
2'
4'
full.
banjo
jazz guitar
acoustic guitar
Upper Slow Attack
U. Percussive Tone
full
Mode Selector
U&L Vocal Ensemble Volume
Upper Volume
Upper
Harmonic Coupler
Upper Tab Voices
loud
soft
program
2 2/3'
cancel
U. flute 1 2/3'
U. flute 2 2/3'
U. flute 5 1/3'
L. String Ensemble Volume
U. String Ensemble Volume
Upper Organ Presets
II
I
U. Percussive Tone
2 2/3'
click
U. string 4'
U. string 8'
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D16
D17
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D80
D81
D82
D83
D84
D85
D86
D87
D88
D89
D90
D91
D92
D93
D94
D96
D97
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
IC3
IC2
+5

NOTES:

- IC'S

IC1:	MN15621GSA
IC2, 3:	SVIGM53217

- TRANSISTORS

Q1~4:	2SA830B
Q5, 6:	2SC1047C

- DIODES

D1~19, 21~34, 36~55, 97:	MA150IR
D58, 86, 87:	SEL2710KLFMF1 (Yellow)
D56, 57, 59~74, 76~85, 88~94, 96:	SEL2210SLFMF1 (Red)

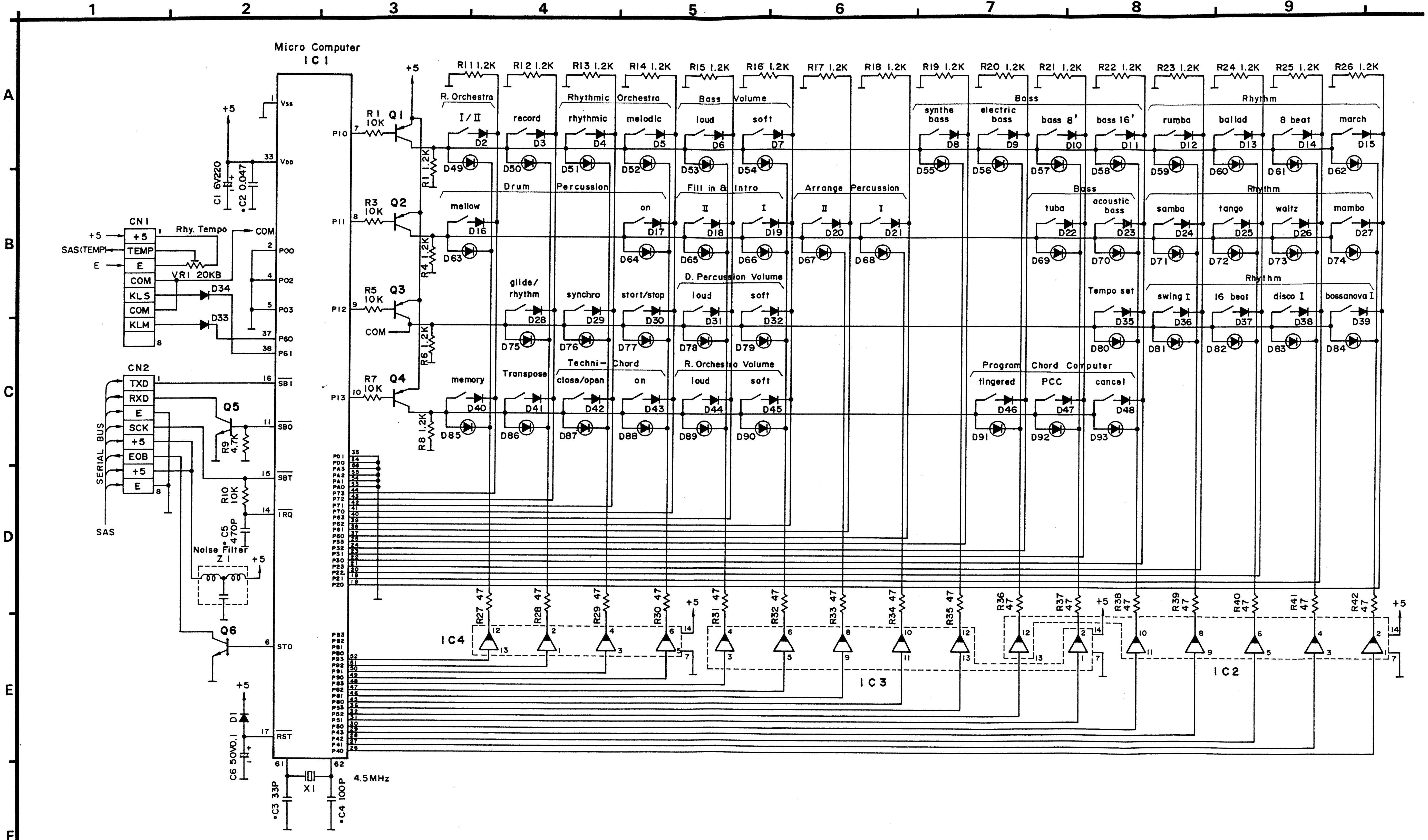
- CERAMIC OSCILLATOR

X1:	EFOA4R5M01A

- COMPONENTS COMBINATION

Z1:	EXATA223S

CONTROL PANEL SW. LEFT CIRCUIT DIAGRAM (CPSL)


1
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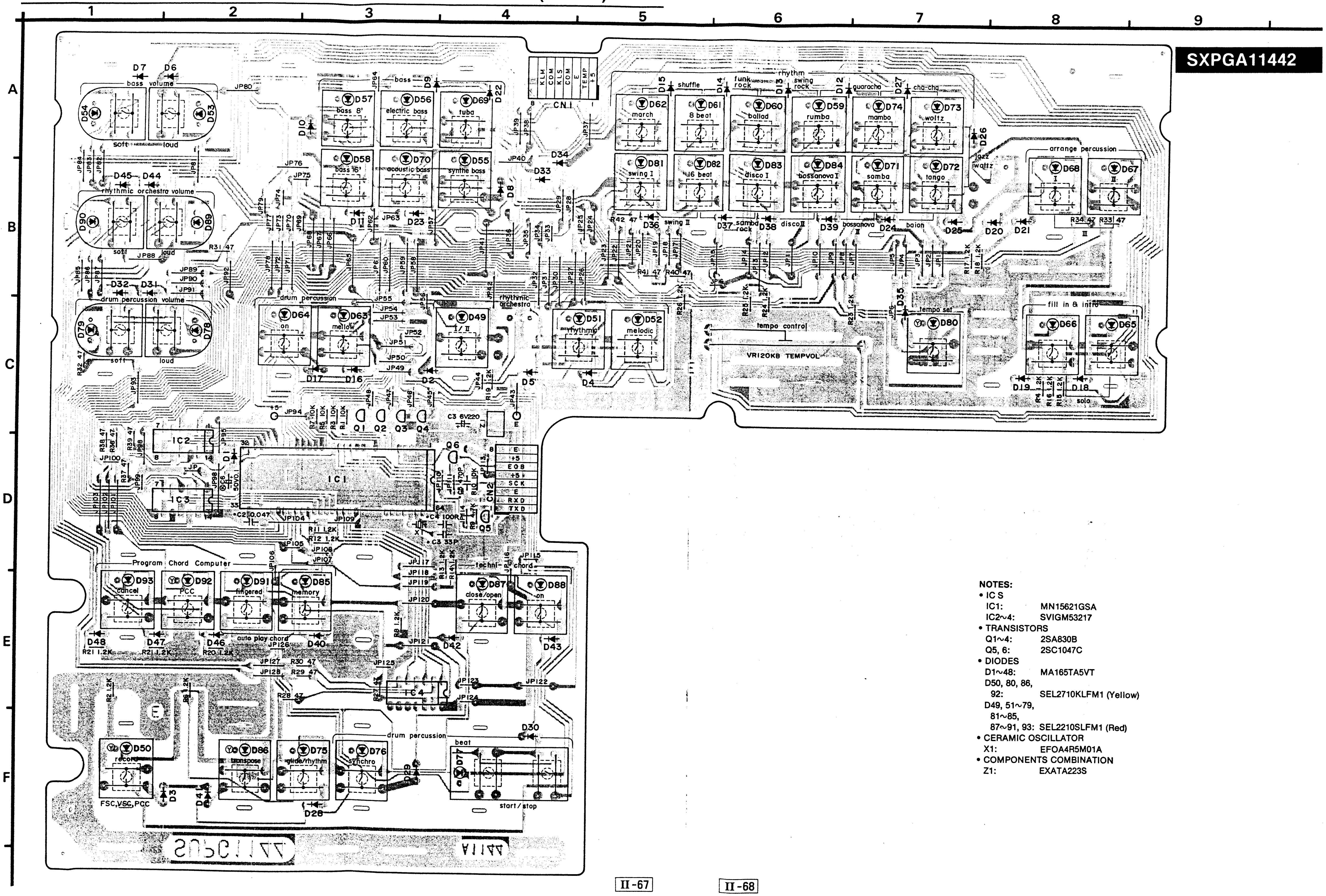
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
Vss
VDD
P10
P11
P12
P13
P00
P02
P03
P60
P61
SB1
SB0
SBT
IRQ
STO
RST
+5
C1 6V220
C2 0.047
CN1
+5
TEMP
E
COM
KLS
COM
KLM
SAS(TEMP)
Rhy. Tempo
COM
VR1 20KB
D34
D33
CN2
TXD
RXD
E
SCK
+5
EOB
+5
E
SERIAL BUS
SAS
Q5
R9 4.7K
R10 10K
C5 470P
Noise Filter
Z1
Q6
D1
C6 50V0.1
C3 33P
X1
C4 100P
4.5MHz
R1 10K
Q1
R3 10K
Q2
R5 10K
Q3
R7 10K
Q4
R2 1.2K
R4 1.2K
R6 1.2K
R8 1.2K
COM
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R. Orchestra
I/II
record
Rhythmic Orchestra
rhythmic
melodic
Bass Volume
loud
soft
Bass
synthe bass
electric bass
bass 8'
bass 16'
Rhythm
rumba
ballad
8 beat
march
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
D49
D50
D51
D52
D53
D54
D55
D56
D57
D58
D59
D60
D61
D62
Drum
Percussion
Fill in & Intro
Arrange Percussion
mellow
on
II
I
II
I
Bass
tuba
acoustic bass
Rhythm
samba
tango
waltz
mambo
D16
D17
D18
D19
D20
D21
D22
D23
D24
D25
D26
D27
D63
D64
D65
D66
D67
D68
D69
D70
D71
D72
D73
D74
D. Percussion Volume
glide/ rhythm
synchro
start/stop
loud
soft
Tempo set
Rhythm
swing I
16 beat
disco I
bossanova I
D28
D29
D30
D31
D32
D35
D36
D37
D38
D39
D75
D76
D77
D78
D79
D80
D81
D82
D83
D84
memory
Transpose
Techni-Chord
close/open
on
R. Orchestra Volume
loud
soft
Program Chord Computer
fingered
PCC
cancel
D40
D41
D42
D43
D44
D45
D46
D47
D48
D85
D86
D87
D88
D89
D90
D91
D92
D93
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
IC4
IC3
IC2
+5

NOTES:
- IC'S
  IC1: MN15621GSA
  IC2~4: SVIGM53217
- TRANSISTORS
  Q1~4: 2SA830B
  Q5, 6: 2SC1047C
- DIODES
  D1~48: MA165TA5VT
  D50, 80, 86, 92: SEL2710KLFM1 (Yellow)
  D49, 51~79, 81~85, 87~91, 93: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  Z1: EXATA223S

CONTROL PANEL SW. LEFT CIRCUIT BOARD (CPSL)


1
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A
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C
D
E
F
SXPGA11442
bass volume
soft
loud
rhythmic orchestra volume
drum percussion volume
bass
bass 8'
electric bass
tuba
bass 16'
acoustic bass
synthe bass
CN1
KLM
COM
KLS
COM
E
TEMP
+5
rhythm
shuffle
funk rock
swing rock
guaracha
cha-cha
march
8 beat
ballad
rumba
mambo
waltz
swing I
16 beat
disco I
bossanova I
samba
tango
jazz waltz
swing II
samba rock
disco II
bossanova II
baion
arrange percussion
I
II
III
drum percussion
on
mellow
rhythmic orchestra
1/II
rhythmic
melodic
tempo control
VR120KB TEMPVOL
tempo set
fill in & intro
solo
IC1
IC2
IC3
IC4
CN2
E
+5
EOB
+5
SCK
E
RXD
TXD
Program Chord Computer
cancel
PCC
fingered
memory
auto play chord
techni-chord
close/open
on
record
FSC,VSC,PCC
transpose
glide/rhythm
synchro
drum percussion
beat
start/stop
Q1
Q2
Q3
Q4
Q5
Q6
X1
Z1
C3 6V220
C2 0.047
C4 100R
C3 33P
R31 47
R32 47
R34 47
R33 47
R41 47
R40 47
R42 47
R21 1.2K
R20 1.2K
R30 47
R29 47
R28 47
R27 47
R2 1.2K
R8 1.2K
R11 1.2K
R12 1.2K
D1
D2
D3
D4
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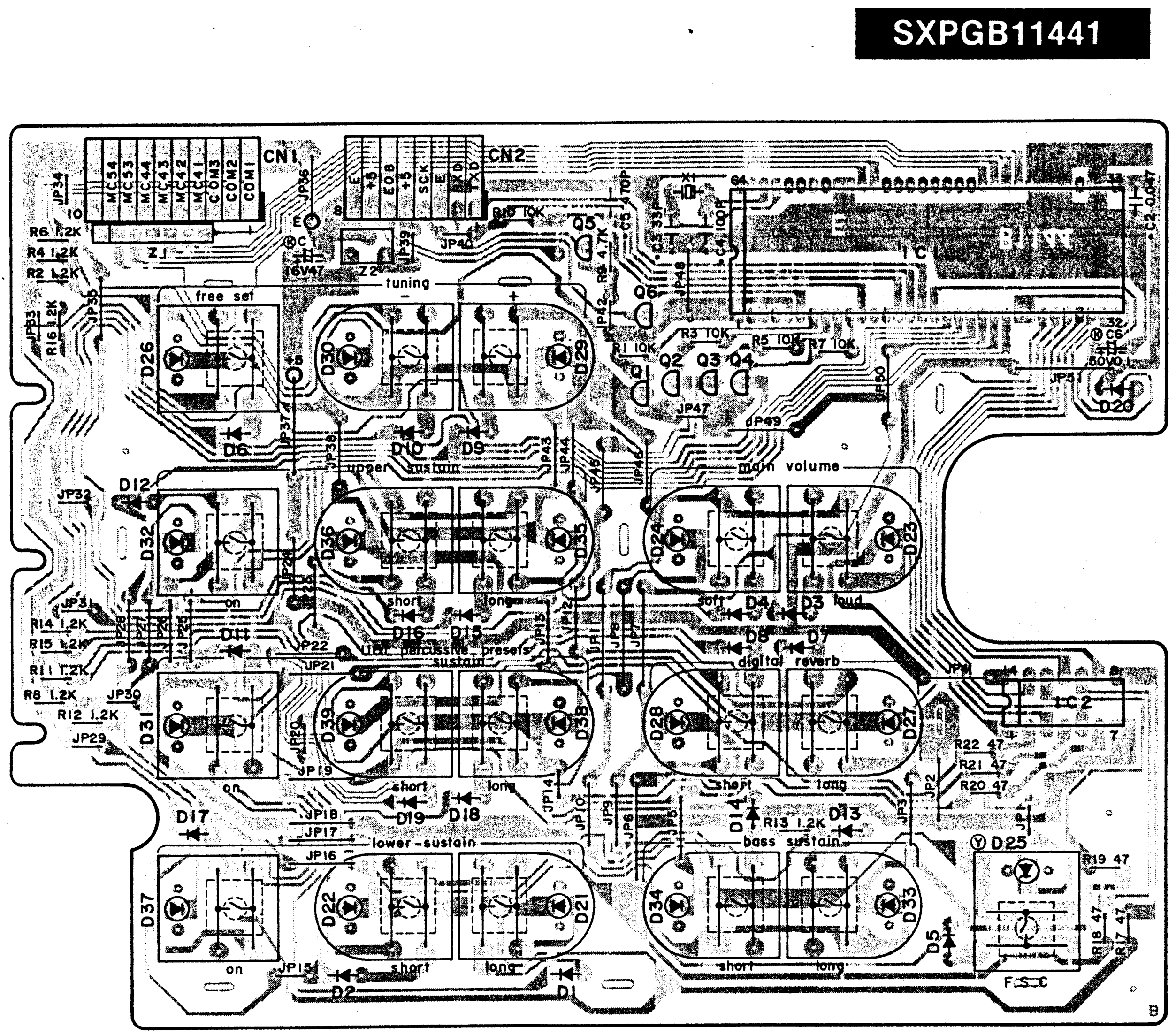
D91
D92
D93

NOTES:

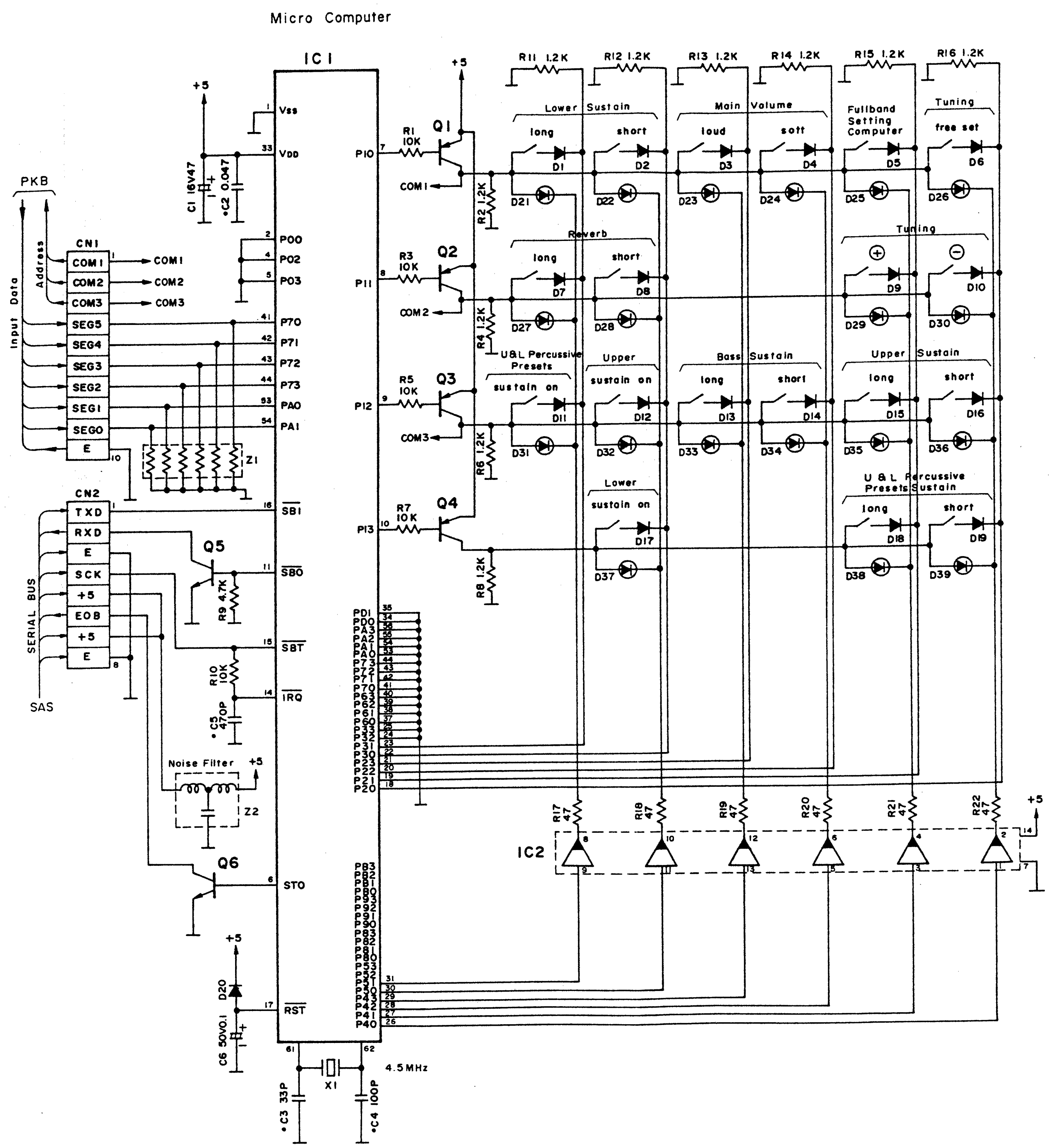
- IC S
  - IC1: MN15621GSA
  - IC2~4: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~48: MA165TA5VT
  - D50, 80, 86, 92: SEL2710KLFM1 (Yellow)
  - D49, 51~79, 81~85, 87~91, 93: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATION
  - Z1: EXATA223S

CONTROL PANEL SW. RIGHT CIRCUIT BOARD (CPSR)


SXPGB11441
CN1
CN2
MC54
MC53
MC44
MC43
MC42
MC41
COM3
COM2
COM1
tuning
free set
upper sustain
main volume
soft
loud
short
long
U&L percussive presets
digital reverb
lower sustain
bass sustain
on
IC 1
IC 2
D25
Q1
Q2
Q3
Q4
Q5
Q6

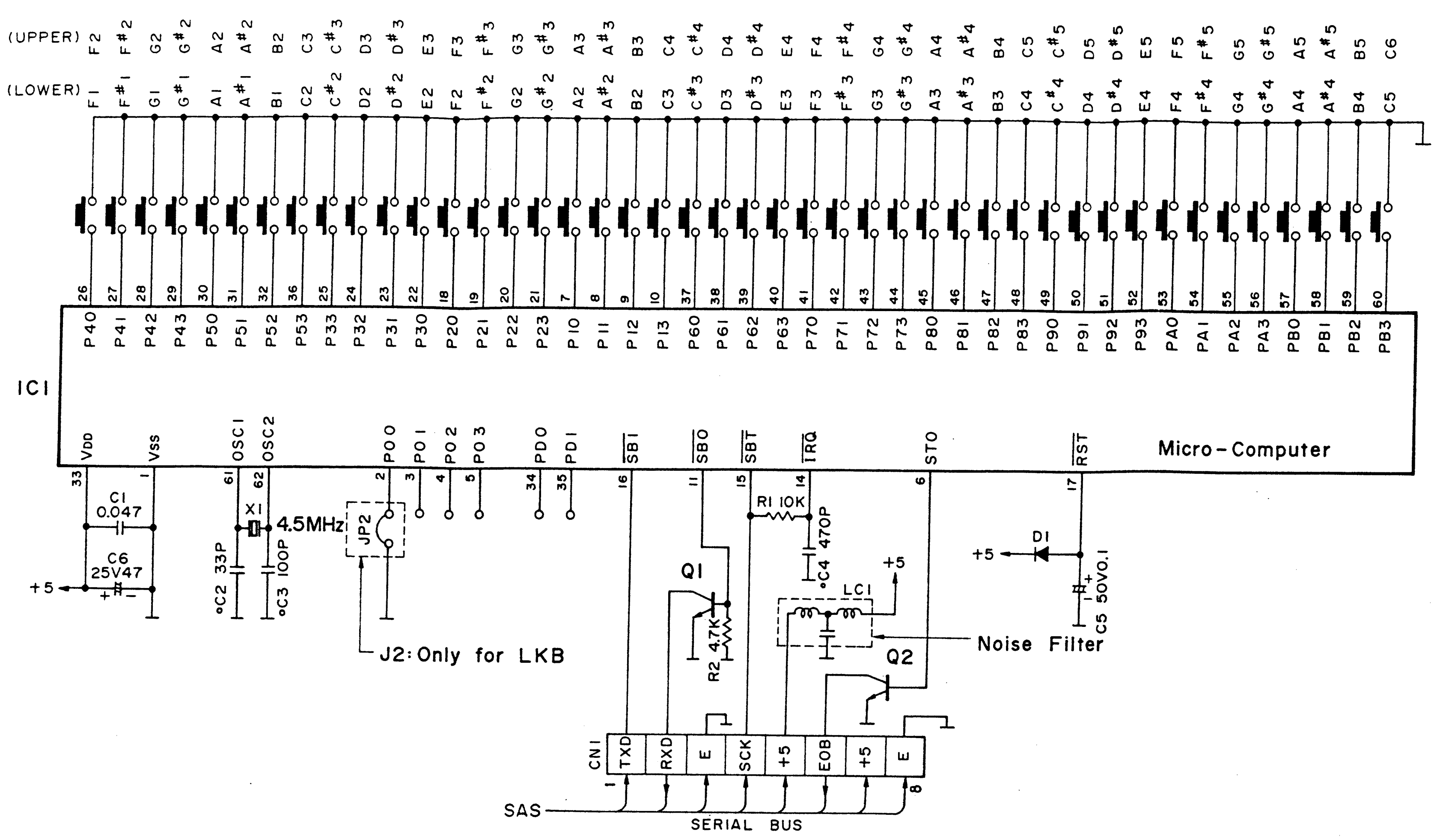
NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D25: SEL2710KLFM1 (Yellow)
  - D21~24, 26~39: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATIONS
  - Z1: EXBP86122MM
  - Z2: EXATA223S

CONTROL PANEL SW. RIGHT CIRCUIT DIAGRAM (CPSR)


Micro Computer
IC1
PKB
Address
Input Data
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
CN2
TXD
RXD
SCK
+5
EOB
SERIAL BUS
SAS
Noise Filter
Z1
Z2
Q1
Q2
Q3
Q4
Q5
Q6
IC2
Lower Sustain
Main Volume
Fullband Setting Computer
Tuning
free set
Reverb
U&L Percussive Presets
Upper
Bass Sustain
Upper Sustain
Lower
U & L Percussive Presets Sustain
long
short
loud
soft
sustain on
4.5MHz
X1

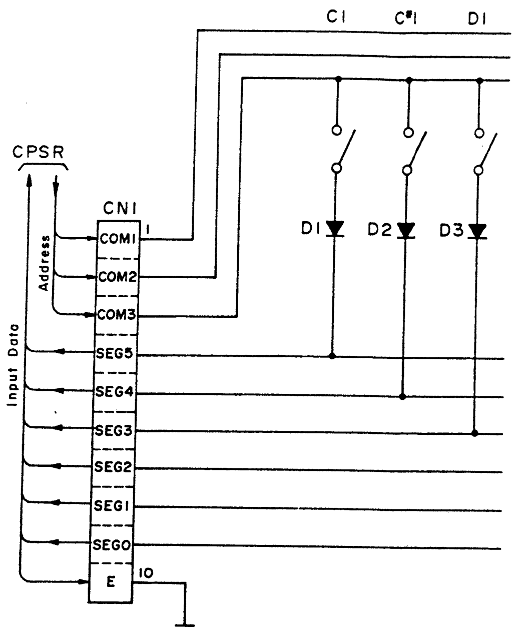
NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1~4: 2SA830B
  - Q5, 6: 2SC1047C
- DIODES
  - D1~20: MA165TA5VT
  - D25: SEL2710KLFM1 (Yellow)
  - D21~24, 26~39: SEL2210SLFM1 (Red)
- CERAMIC OSCILLATOR
  - X1: EFOA4R5M01A
- COMPONENTS COMBINATIONS
  - Z1: EXBP86122MM
  - Z2: EXATA223S

UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB)


(UPPER) F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
(LOWER) F1 F#1 G1 G#1 A1 A#1 B1 C2 C#2 D2 D#2 E2 F2 F#2 G2 G#2 A2 A#2 B2 C3 C#3 D3 D#3 E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5
IC1
P40 P41 P42 P43 P50 P51 P52 P53 P33 P32 P31 P30 P20 P21 P22 P23 P10 P11 P12 P13 P60 P61 P62 P63 P70 P71 P72 P73 P80 P81 P82 P83 P90 P91 P92 P93 PA0 PA1 PA2 PA3 PB0 PB1 PB2 PB3
VDD VSS OSC1 OSC2 PO0 PO1 PO2 PO3 PD0 PD1 SBI SBO SBT IRQ STO RST
Micro-Computer
C1 0.047
C6 25V47
+5
X1 4.5MHz
C2 33P
C3 100P
JP2
J2: Only for LKB
R1 10K
C4 470P
Q1
R2 4.7K
LC1
Q2
Noise Filter
D1
+5
C5 50V0.1
CN1 TXD RXD E SCK +5 EOB +5 E
SAS
SERIAL BUS

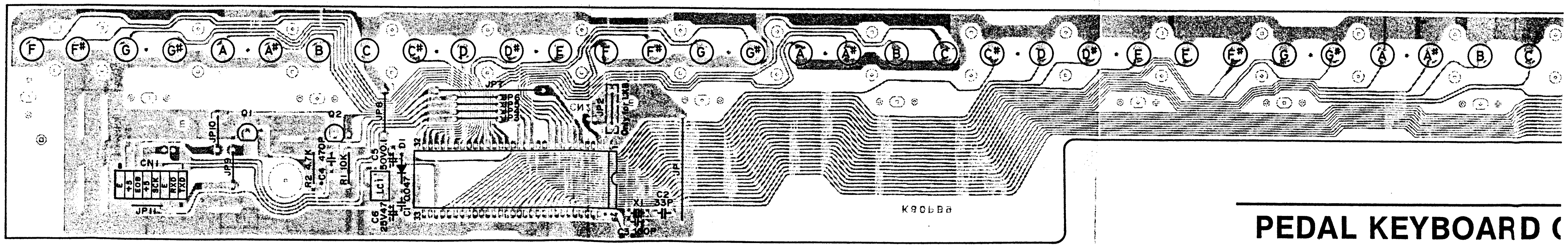
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

PEDAL KEYB

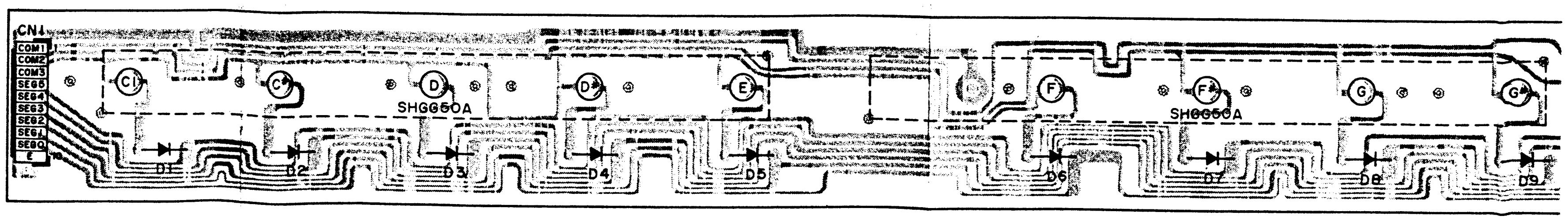

C1 C#1 D1
CPSR
CN1
Address
Input Data
COM1 COM2 COM3 SEG5 SEG4 SEG3 SEG2 SEG1 SEG0 E
1
10
D1 D2 D3

UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB)

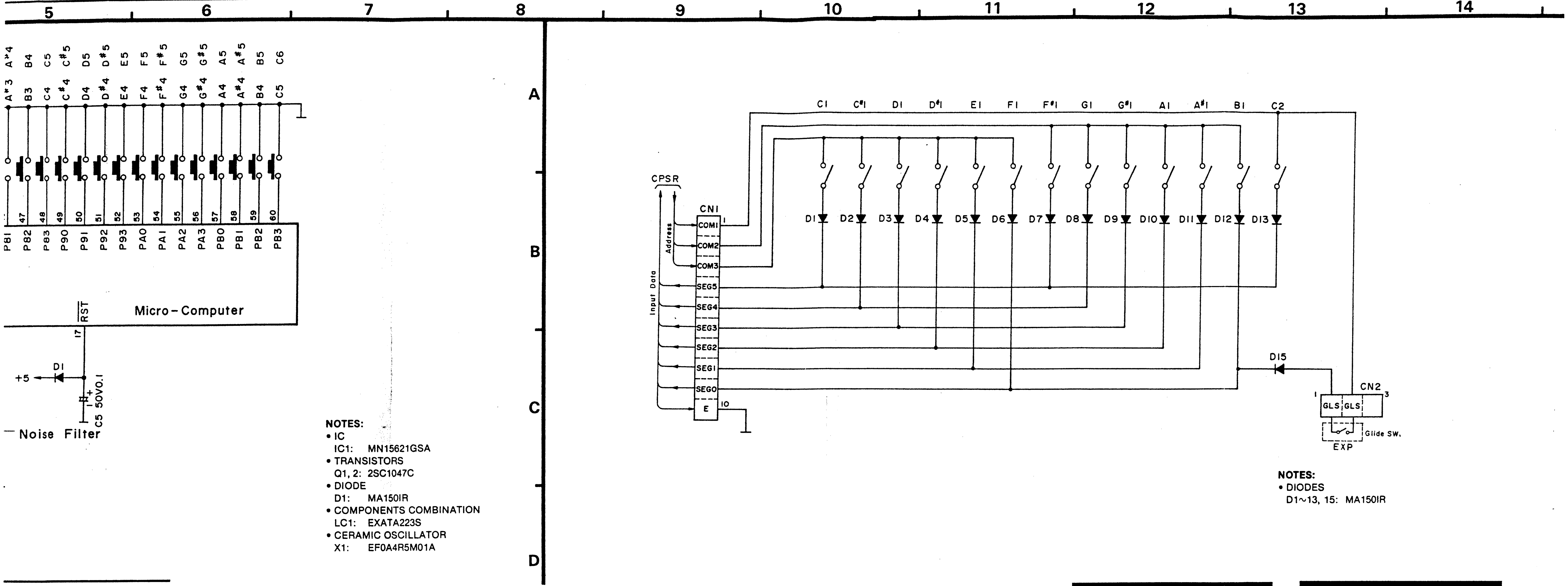
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A


F F# G G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
JP1
Q1
Q2
CN1
JP2
JP10
JP9
JP11
R2 4.7K
C4 470P
R1 10K
C5
LC1
D1
C6
C1
X1
C2 33P
C3 100P
K80bB8

PEDAL KEYBOARD (


CN1
COM1 COM2 COM3 SEG5 SEG4 SEG3 SEG2 SEG1 SEG0 E
C1 C# D D# E F F# G G#
SHG650A
SHG650A
D1 D2 D3 D4 D5 D6 D7 D8 D9

PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB)


5
6
7
8
9
10
11
12
13
14
A
B
C
D
A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5
47 48 49 50 51 52 53 54 55 56 57 58 59 60
P81 P82 P83 P90 P91 P92 P93 PA0 PA1 PA2 PA3 PB0 PB1 PB2 PB3
Micro-Computer
RST
17
D1
+5
C5 50V0.1
Noise Filter
C1 C#1 D1 D#1 E1 F1 F#1 G1 G#1 A1 A#1 B1 C2
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
CPSR
Address
Input Data
CN1
1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
10
D15
CN2
1
3
GLS
GLS
EXP
Glide SW.

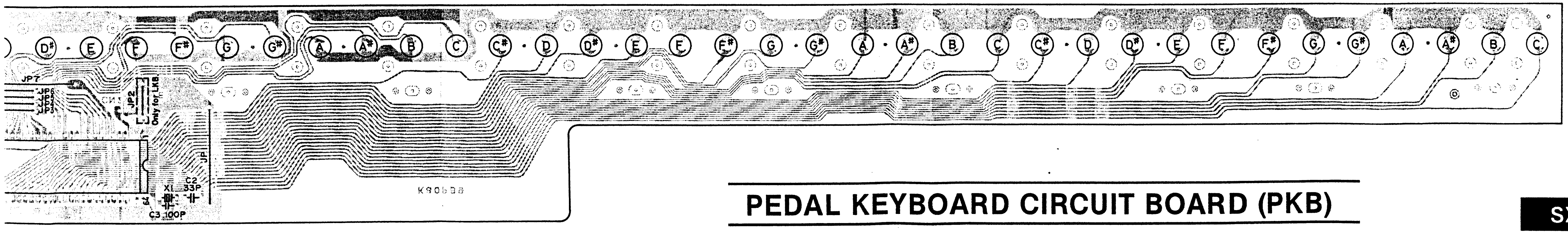
NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATION
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

NOTES:
- DIODES
  D1~13, 15: MA150IR

B & LKB)

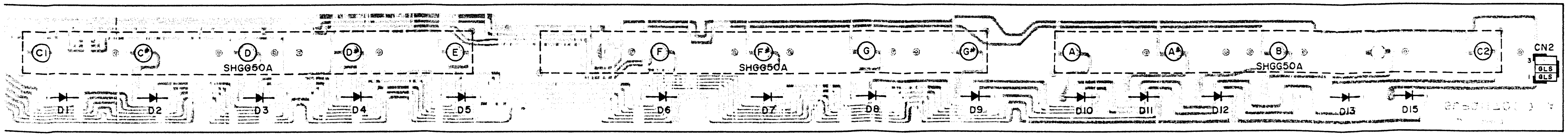
UKB: K80VPB4A

LKB: K80VPB2A


D#
E
F
F#
G
G#
A
A#
B
C
C#
D
D#
E
F
F#
G
G#
A
A#
B
C
C#
D
D#
E
F
F#
G
G#
A
A#
B
C
JP7
JP2
Only for LKB
JP1
X1
C2 33P
C3 100P

PEDAL KEYBOARD CIRCUIT BOARD (PKB)

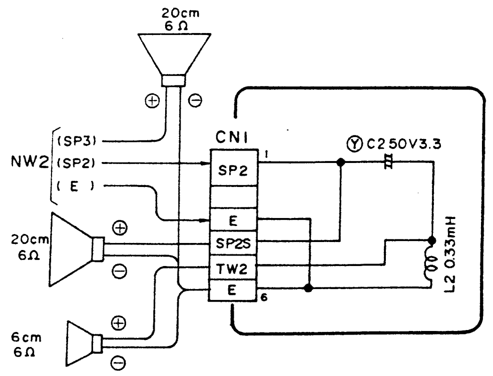
SXPG11701


C1
C#
D
D#
E
F
F#
G
G#
A
A#
B
C2
SHGG50A
SHGG50A
SHGG50A
CN2
GLS
GLS
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D15

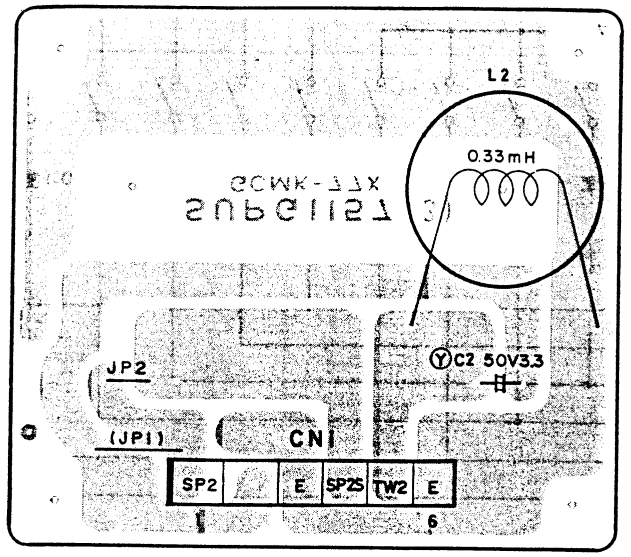
NOTES:
- DIODES
  D1~13, 15: MA150IR

NETWORK CIRCUIT 1 (NW1)

SXPG11575



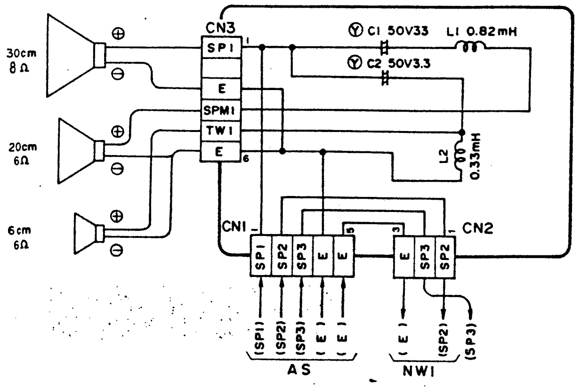
20cm 6Ω
NW2
(SP3)
(SP2)
(E)
CN1
SP2
E
SP2S
TW2
E
Ⓨ C2 50V3.3
L2 0.33mH
20cm 6Ω
6cm 6Ω



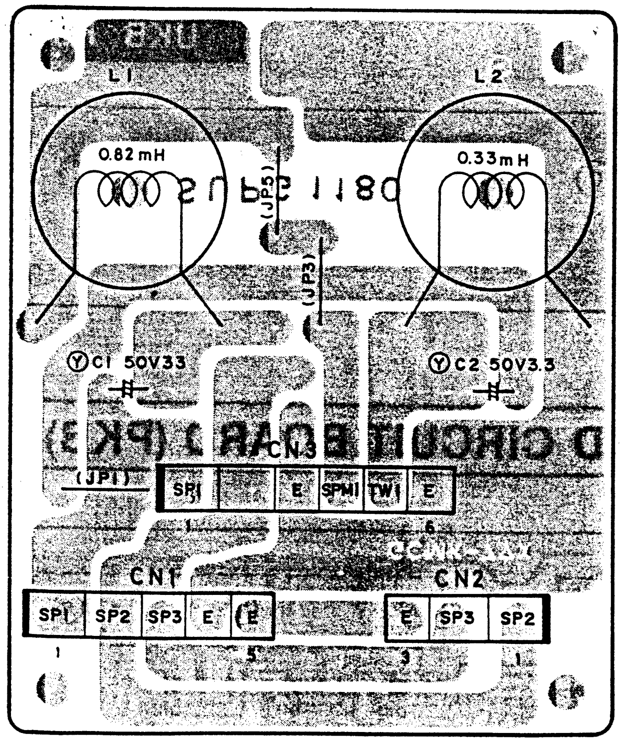
L2
0.33mH
JP2
Ⓨ C2 50V3.3
(JP1)
CN1
SP2
E
SP2S
TW2
E
1
6

NETWORK CIRCUIT 2 (NW2)

SXPG11803

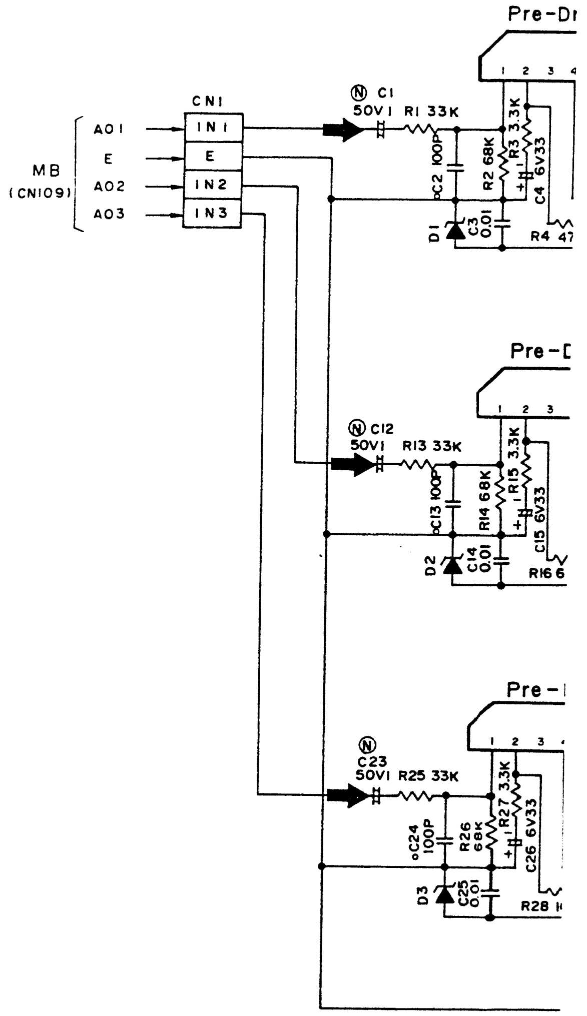


30cm 8Ω
20cm 6Ω
6cm 6Ω
CN3
SP1
E
SPM1
TW1
E
Ⓨ C1 50V33
L1 0.82mH
Ⓨ C2 50V3.3
L2 0.33mH
CN1
CN2
SP1
SP2
SP3
E
E
E
SP3
SP2
(SP1)
(SP2)
(SP3)
(E)
(E)
(E)
(SP2)
(SP3)
AS
NW1



L1
L2
0.82mH
0.33mH
(JP5)
(JP3)
Ⓨ C1 50V33
Ⓨ C2 50V3.3
(JP1)
CN3
SP1
E
SPM1
TW1
E
CN1
CN2
SP1
SP2
SP3
E
E
E
SP3
SP2
1
6

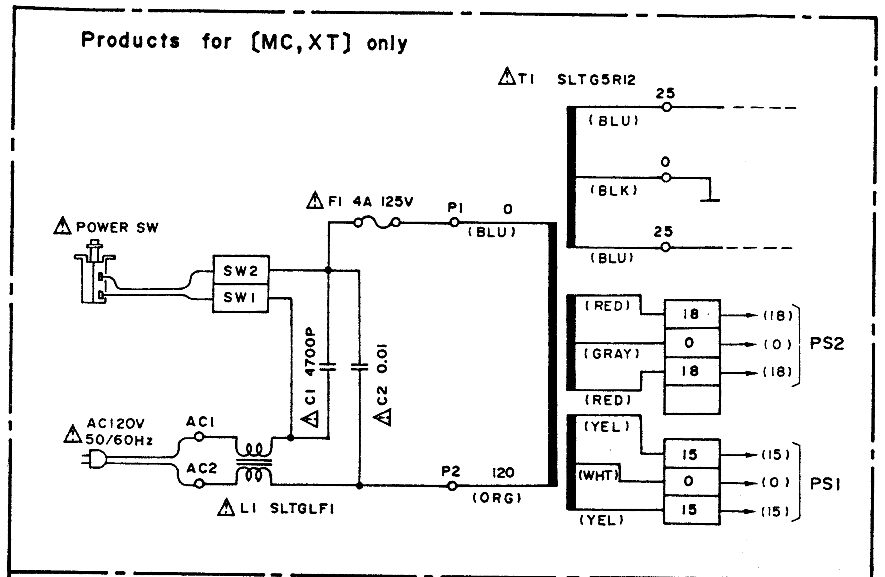
AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)



Pre-Dr
MB (CN109)
AO1
E
AO2
AO3
CN1
IN1
E
IN2
IN3
Ⓝ C1 50V1
R1 33K
C2 100P
R2 68K
R3 3.3K
C4 6V33
C3 0.01
D1
R4 47
Pre-D
Ⓝ C12 50V1
R13 33K
C13 100P
R14 68K
R15 3.3K
C15 6V33
C14 0.01
D2
R16 6
Pre-
Ⓝ C23 50V1
R25 33K
C24 100P
R26 68K
R27 3.3K
C26 6V33
C25 0.01
D3
R28

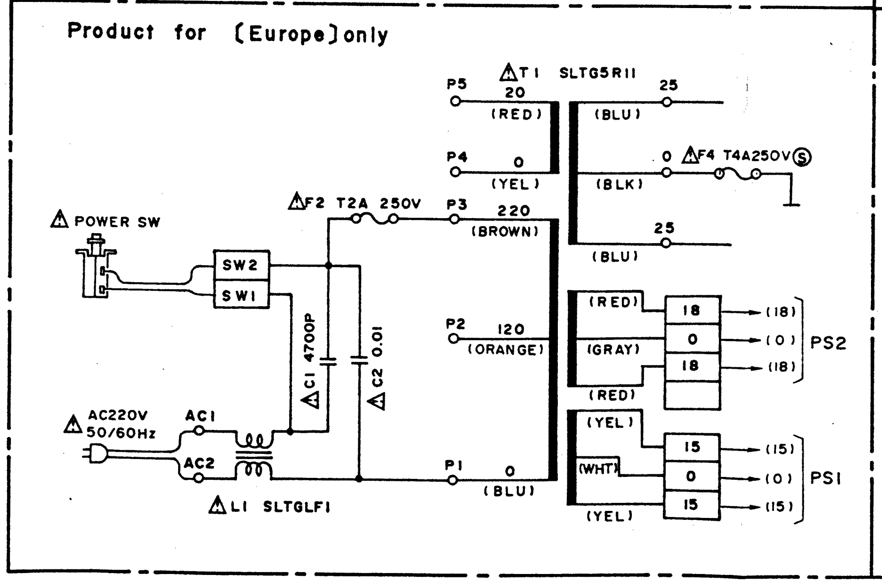
AC POWER SUPPLY CIRCUIT

Products for (MC,XT) only



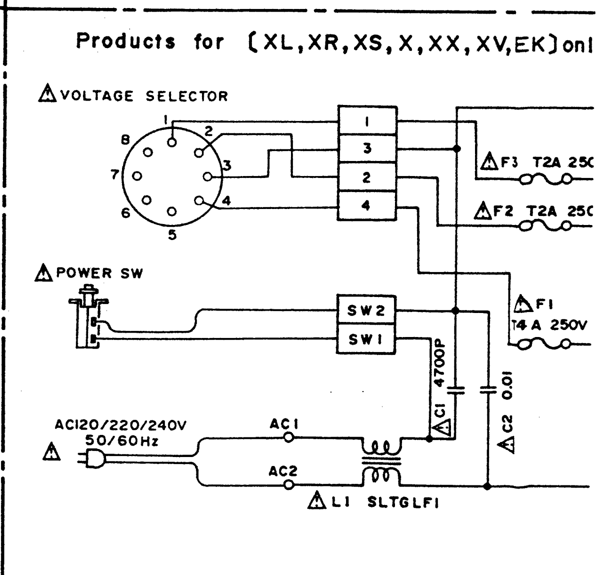
⚠T1 SLTG5R12
⚠POWER SW
SW2
SW1
⚠F1 4A 125V
P1 0 (BLU)
25 (BLU)
0 (BLK)
25 (BLU)
(RED)
(GRAY)
(RED)
18
0
18
(18)
(0)
(18)
PS2
(YEL)
(WHT)
(YEL)
15
0
15
(15)
(0)
(15)
PS1
⚠C1 4700P
⚠C2 0.01
AC120V 50/60Hz
AC1
AC2
⚠L1 SLTGLF1
P2 120 (ORG)

Product for (Europe) only



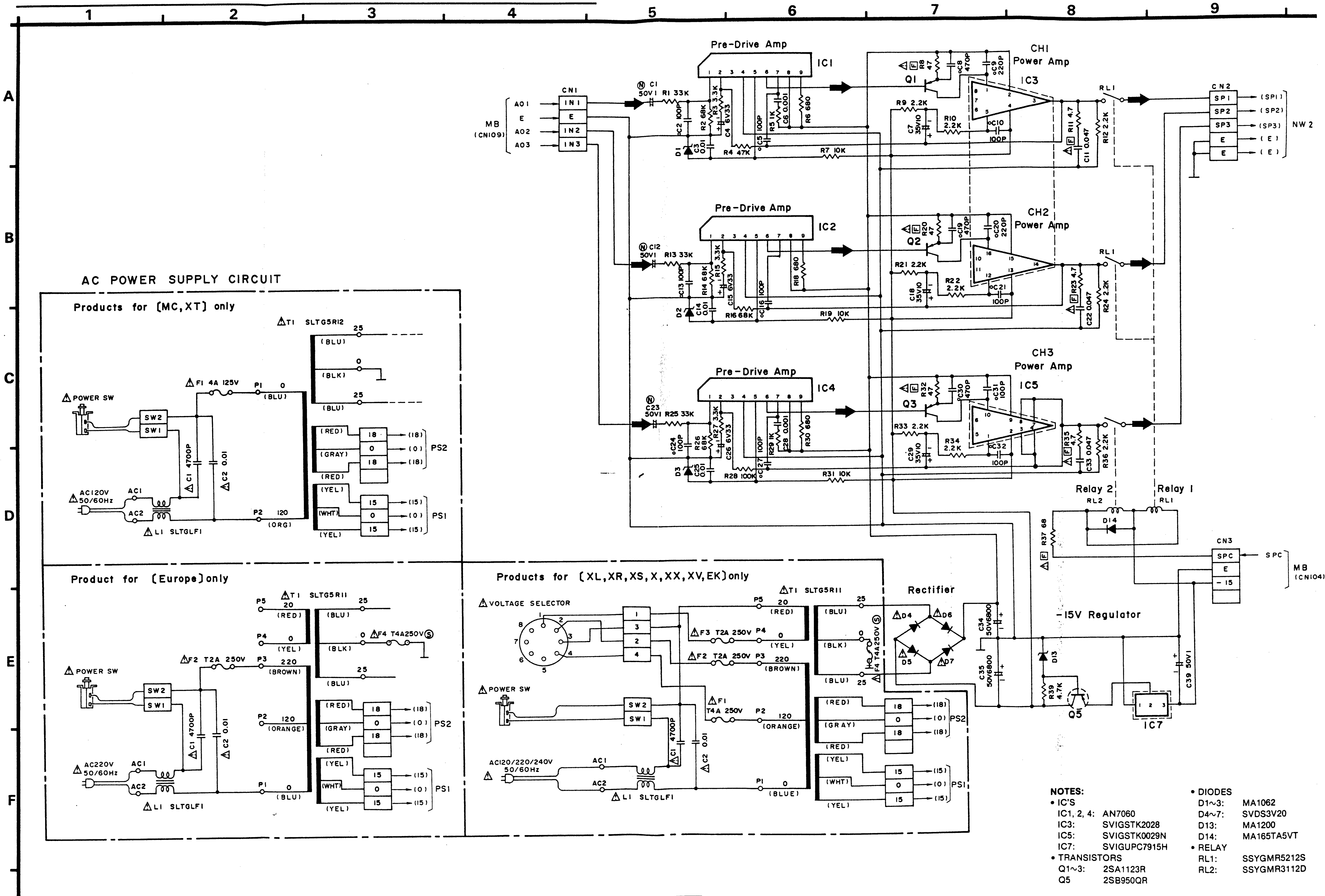
⚠T1 SLTG5R11
P5 20 (RED)
P4 0 (YEL)
P3 220 (BROWN)
P2 120 (ORANGE)
P1 0 (BLU)
25 (BLU)
0 (BLK)
⚠F4 T4A250V Ⓢ
25 (BLU)
⚠F2 T2A 250V
⚠POWER SW
SW2
SW1
⚠C1 4700P
⚠C2 0.01
AC220V 50/60Hz
AC1
AC2
⚠L1 SLTGLF1
(RED)
(GRAY)
(RED)
18
0
18
(18)
(0)
(18)
PS2
(YEL)
(WHT)
(YEL)
15
0
15
(15)
(0)
(15)
PS1

Products for (XL,XR,XS,X,XX,XV,EK)onl



⚠VOLTAGE SELECTOR
1
2
3
4
5
6
7
8
⚠F3 T2A 25
⚠F2 T2A 25
⚠POWER SW
SW2
SW1
⚠F1 T4 A 250V
⚠C1 4700P
⚠C2 0.01
AC120/220/240V 50/60Hz
AC1
AC2
⚠L1 SLTGLF1

AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
MB (CN109)
AO1
E
AO2
AO3
CN1
IN1
E
IN2
IN3
Pre-Drive Amp
IC1
IC2
IC4
CH1 Power Amp
CH2 Power Amp
CH3 Power Amp
IC3
IC5
Q1
Q2
Q3
C1 50V1
R1 33K
C2 100P
R2 68K
R3 3.3K
C3 0.01
C4 6V33
D1
R4 47K
C5 100P
R5 1K
C6 0.001
R6 680
R7 10K
R8 47
C8 470P
C9 220P
R9 2.2K
C7 35V10
R10 2.2K
C10 100P
R11 4.7
C11 0.047
R12 2.2K
C12 50V1
R13 33K
C13 100P
R14 68K
R15 3.3K
C14 0.01
C15 6V33
D2
R16 68K
C16 100P
R18 680
R19 10K
R20 47
C19 470P
C20 220P
R21 2.2K
C18 35V10
R22 2.2K
C21 100P
R23 4.7
C22 0.047
R24 2.2K
C23 50V1
R25 33K
C24 100P
R26 68K
R27 3.3K
C25 0.01
C26 6V33
D3
R28 100K
C27 100P
R29 1K
C28 0.001
R30 680
R31 10K
R32 47
C30 470P
C31 100P
R33 2.2K
C29 35V10
R34 2.2K
C32 100P
R35 4.7
C33 0.047
R36 2.2K
RL1
CN2
SP1
SP2
SP3
E
E
(SP1)
(SP2)
(SP3)
(E)
(E)
NW2
Relay 2
RL2
Relay 1
RL1
D14
R37 68
CN3
SPC
E
-15
MB (CN104)
Rectifier
D4
D5
D6
D7
C34 50V6800
C35 50V6800
-15V Regulator
D13
R39 4.7K
Q5
IC7
C39 50V1
AC POWER SUPPLY CIRCUIT
Products for (MC, XT) only
T1 SLTG5R12
POWER SW
SW2
SW1
F1 4A 125V
P1 0
(BLU)
C1 4700P
C2 0.01
AC120V 50/60Hz
AC1
AC2
L1 SLTGLF1
P2 120
(ORG)
25
(BLU)
0
(BLK)
25
(BLU)
(RED)
(GRAY)
(RED)
18
0
18
(18)
(0)
(18)
PS2
(YEL)
(WHT)
(YEL)
15
0
15
(15)
(0)
(15)
PS1
Product for (Europe) only
T1 SLTG5R11
P5 20 (RED)
P4 0 (YEL)
F2 T2A 250V
P3 220 (BROWN)
F4 T4A250V
P2 120 (ORANGE)
AC220V 50/60Hz
P1 0 (BLU)
Products for (XL, XR, XS, X, XX, XV, EK) only
VOLTAGE SELECTOR
1
2
3
4
5
6
7
8
F3 T2A 250V
F2 T2A 250V
F1 T4A 250V
AC120/220/240V 50/60Hz
P1 0 (BLUE)

NOTES:

• IC'S	
IC1, 2, 4:	AN7060
IC3:	SVIGSTK2028
IC5:	SVIGSTK0029N
IC7:	SVIGUPC7915H
• TRANSISTORS	
Q1~3:	2SA1123R
Q5	2SB950QR

• DIODES	
D1~3:	MA1062
D4~7:	SVDS3V20
D13:	MA1200
D14:	MA165TA5VT
• RELAY	
RL1:	SSYGMR5212S
RL2:	SSYGMR3112D

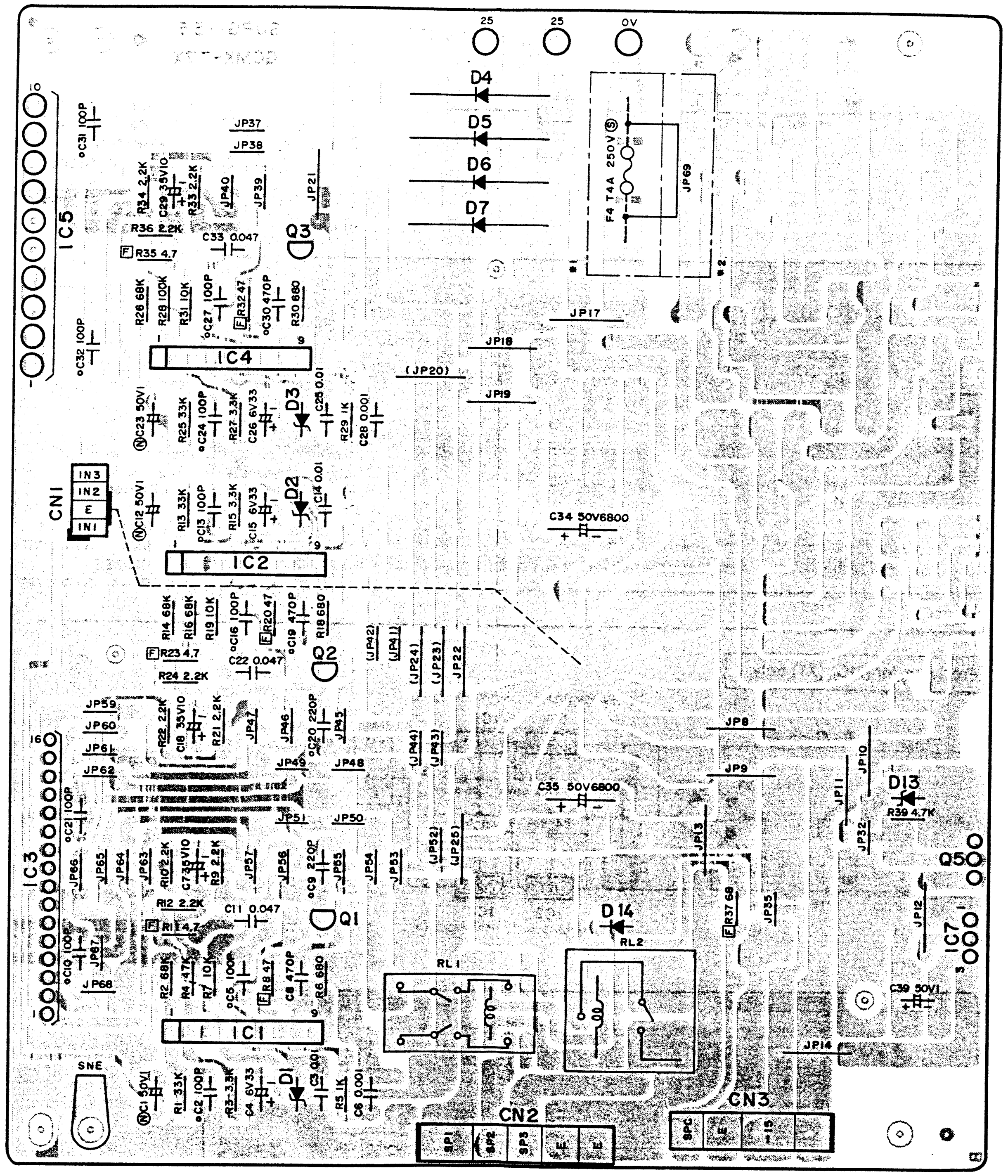
AMP & POWER SUPPLY CIRCUIT BOARD (AS)

SXPG11553

∗1...F4: T4A 250V

SXPG11554

∗2...JP69: Products for [MC], [XT] only.

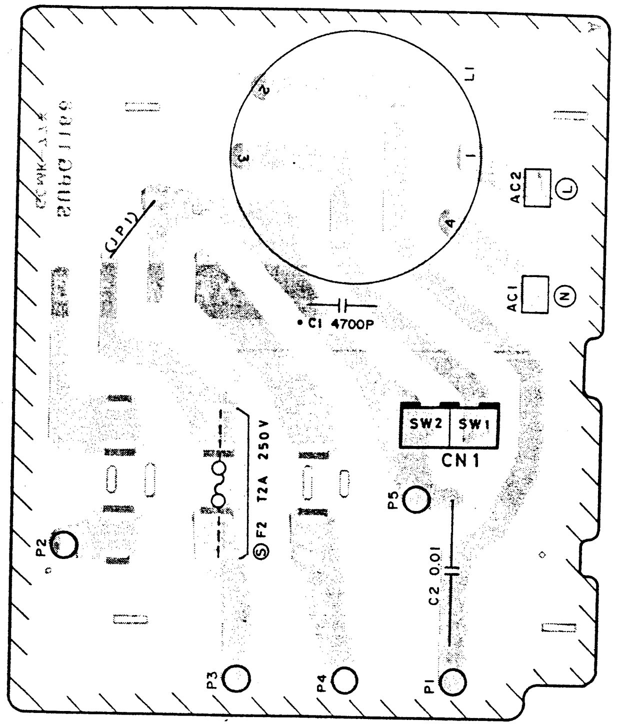

1
2
3
4
5
A
B
C
D
E
F
IC5
IC4
IC3
IC2
IC1
IC7
CN1
IN3
IN2
E
IN1
CN2
SP1
SP2
SP3
E
E
CN3
SPC
E
-15
D4
D5
D6
D7
D13
D14
D1
D2
D3
Q1
Q2
Q3
Q5
RL1
RL2
F4 T4A 250V
JP69
C34 50V6800
C35 50V6800
C39 50V1
R39 4.7K
25
25
0V
SNE.

NOTES:

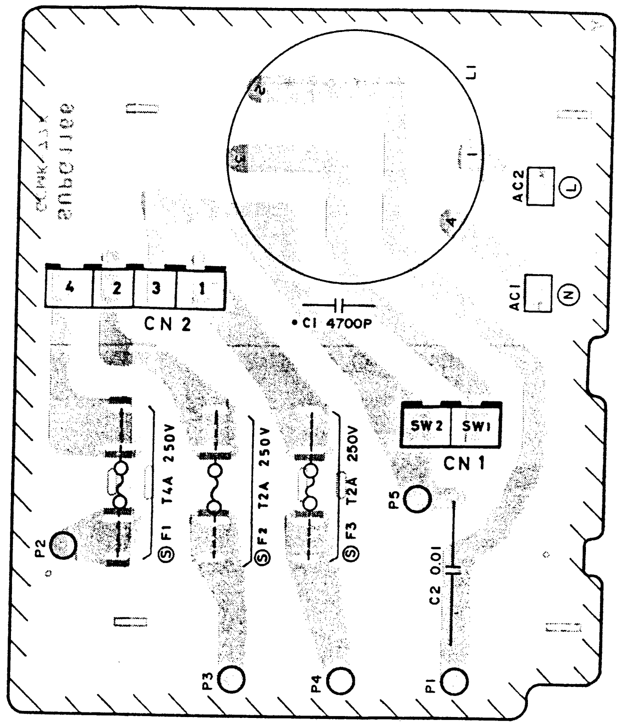
- IC'S
  - IC1, 2, 4: AN7060
  - IC3: SVIGSTK2028
  - IC5: SVIGSTK0029N
  - IC7: SVIGUPC7915H
- TRANSISTORS
  - Q1~3: 2SA1123R
  - Q5 2SB950QR
- DIODES
  - D1~3: MA1062
  - D4~7: SVDS3V20
  - D13: MA1200
  - D14: MA165TA5VT
- RELAY
  - RL1: SSYGMR5212S
  - RL2: SSYGMR3112D

AC POWER SUPPLY CIRCUIT BOARD (ACP)

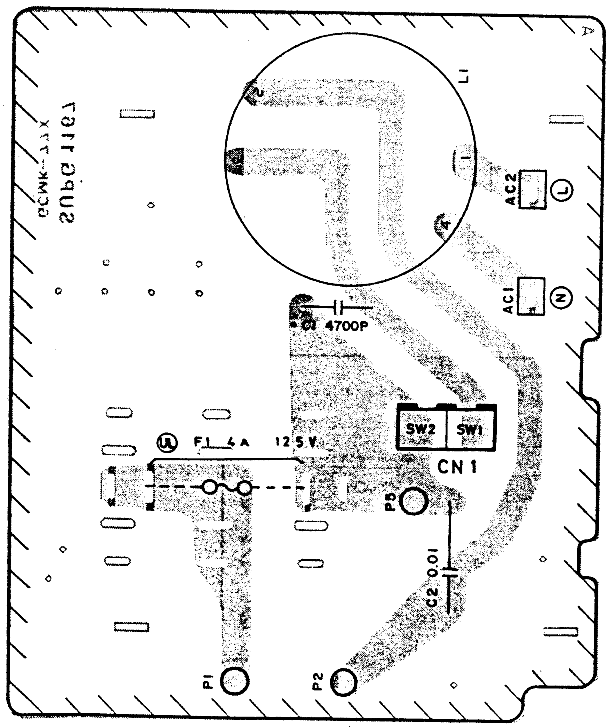
∗ Products for Europe only. **SXPG11661**


1
2
A
B
C
L1
AC2
L
AC1
N
C1 4700P
SW2
SW1
CN1
F2 T2A 250V
P5
P2
P3
P4
P1
C2 0.01

∗ Products for [EK], [XL], [XR], [XS], [X], [XX], and [XV] only. **SXPG11663**

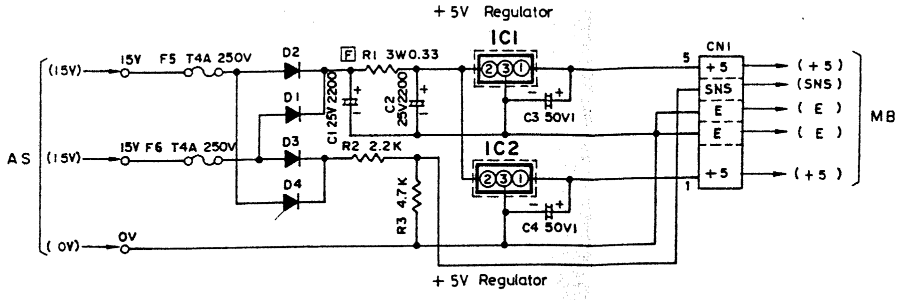

3
4
L1
AC2
L
AC1
N
4
2
3
1
CN 2
C1 4700P
SW2
SW1
CN 1
F1 T4A 250V
F2 T2A 250V
F3 T2A 250V
P5
P2
P3
P4
P1
C2 0.01

∗ Products for [MC], [XT] only. **SXPG11672**


D
E
F
L1
AC2
L
AC1
N
C1 4700P
F1 4A 125V
SW2
SW1
CN 1
P5
C2 0.01
P1
P2

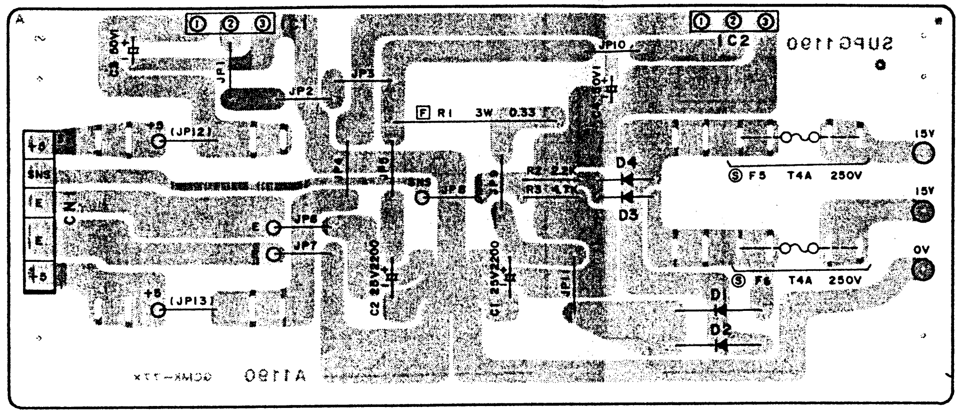
POWER SUPPLY CIRCUIT 1 (PS1)

1 2 3 4


+5V Regulator
IC1
IC2
+5V Regulator
AS
(15V)
(15V)
(0V)
15V F5 T4A 250V
15V F6 T4A 250V
0V
D1
D2
D3
D4
R1 3W0.33
R2 2.2K
R3 4.7K
C1 25V2200
C2 25V2200
C3 50V1
C4 50V1
CN1
+5
SNS
E
E
+5
(+5)
(SNS)
(E)
(E)
(+5)
MB

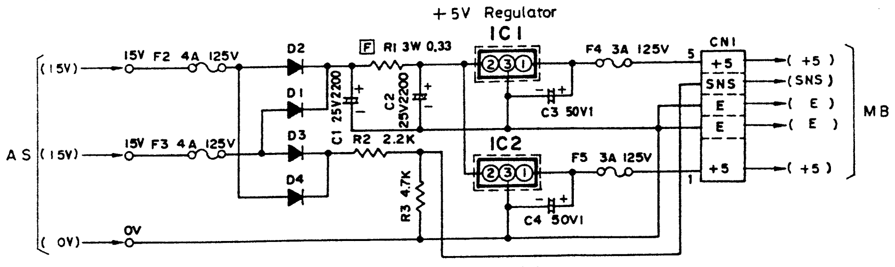
NOTES:
- IC'S
  IC1, 2: SVIGSI3052P
- DIODES
  D1, 2: SVDS3V20
  D3, 4: MA150IR

SXPGA11901


IC1
IC2
JP1
JP2
JP3
JP10
JP12
JP13
JP6
JP7
R1 3W 0.33
R3 4.7K
D4
D3
D1
D2
F5 T4A 250V
F6 T4A 250V
C1 25V2200
C2 25V2200
C3 50V1
C4 50V1
15V
15V
0V
CN1
+5
SNS
E
E
+5

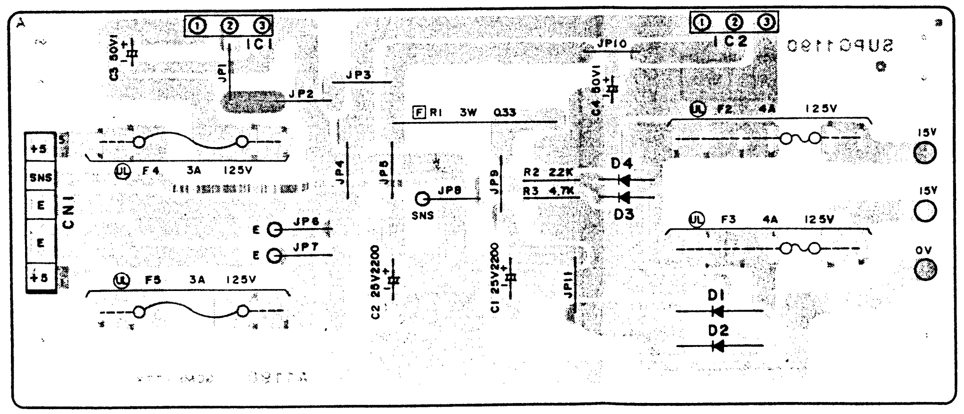
NOTES:
- IC'S
  IC1, 2: SVIGSI3052P
- DIODES
  D1, 2: SVDS3V20
  D3, 4: MA150IR

Products for [MC], [XT] only.


+5V Regulator
IC1
IC2
+5V Regulator
AS
(15V)
(15V)
(0V)
15V F2 4A 125V
15V F3 4A 125V
F4 3A 125V
F5 3A 125V
0V
D1
D2
D3
D4
R1 3W 0.33
R2 2.2K
R3 4.7K
C1 25V2200
C2 25V2200
C3 50V1
C4 50V1
CN1
+5
SNS
E
E
+5
(+5)
(SNS)
(E)
(E)
(+5)
MB

NOTES:
- IC'S
  IC1, 2: SVIGSI3052P
- DIODES
  D1, 2: SVDS3V20
  D3, 4: MA150IR

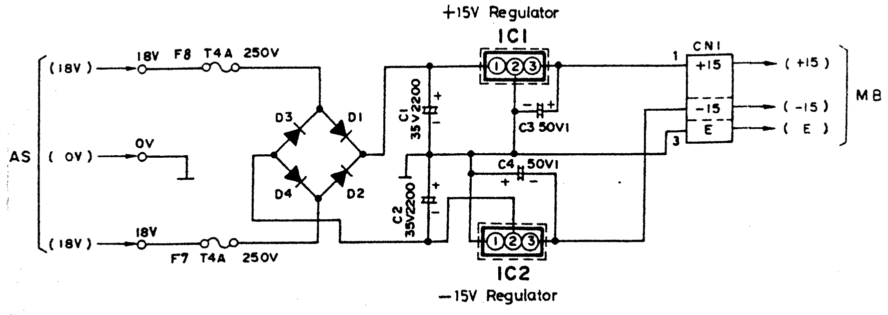
SXPGA11903


IC1
IC2
JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8
JP9
JP10
JP11
R1 3W 0.33
R2 2.2K
R3 4.7K
D1
D2
D3
D4
F2 4A 125V
F3 4A 125V
F4 3A 125V
F5 3A 125V
C1 25V2200
C2 25V2200
C3 50V1
C4 50V1
15V
15V
0V
CN1
+5
SNS
E
E
+5

NOTES:
- IC'S
  IC1, 2: SVIGSI3052P
- DIODES
  D1, 2: SVDS3V20
  D3, 4: MA150IR

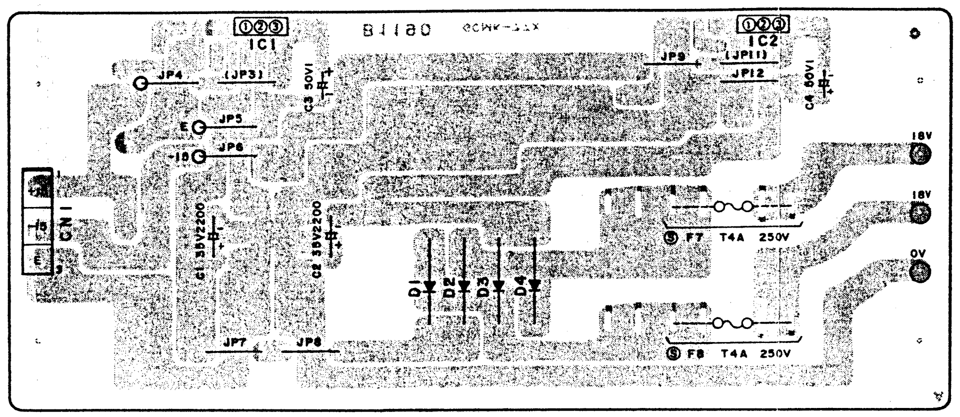
POWER SUPPLY CIRCUIT 2 (PS2)

1 2 3 4 5


+15V Regulator
IC1
IC2
−15V Regulator
AS
(18V)
(0V)
(18V)
18V F8 T4A 250V
18V F7 T4A 250V
0V
D1
D2
D3
D4
C1 35V2200
C2 35V2200
C3 50V1
C4 50V1
CN1
+15
−15
E
(+15)
(−15)
(E)
MB

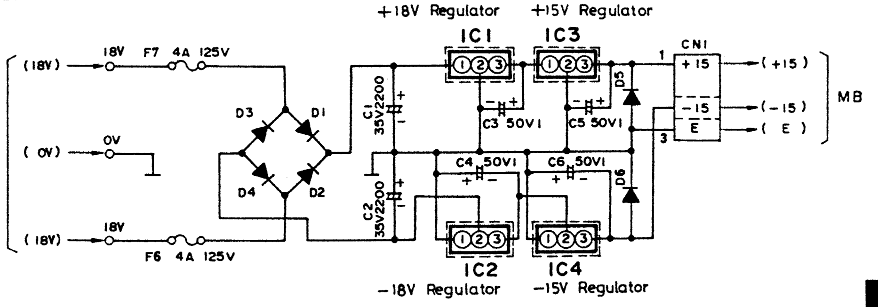
NOTES:
- IC'S
  IC1: AN7815
  IC2: SVIGUPC7915H
- DIODES
  D1~4: SVDS2V20

SXPGB11901


IC1
IC2
JP3
JP4
JP5
JP6
JP7
JP8
JP9
JP11
JP12
C1 35V2200
C2 35V2200
C3 50V1
C4 50V1
D1
D2
D3
D4
F7 T4A 250V
F8 T4A 250V
18V
18V
0V
CN1

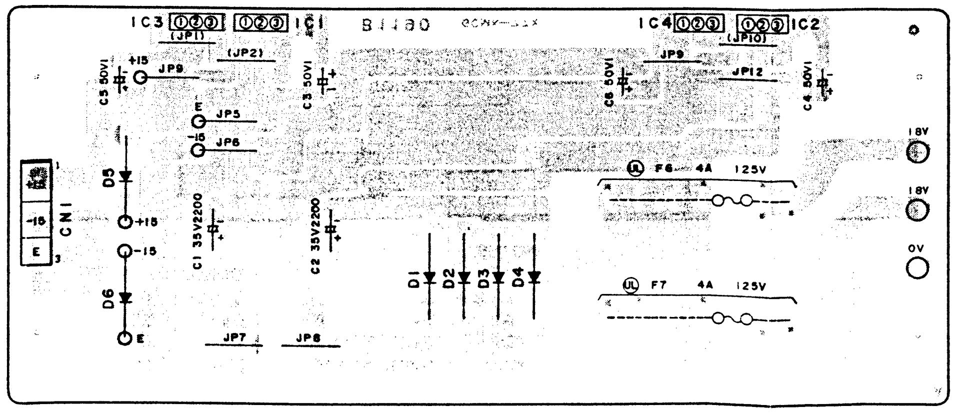
NOTES:
- IC'S
  IC1: AN7815
  IC2: SVIGUPC7915H
- DIODES
  D1~4: SVDS2V20

Products for [MC], [XT] only.


+18V Regulator
+15V Regulator
IC1
IC3
IC2
IC4
−18V Regulator
−15V Regulator
AS
(18V)
(0V)
(18V)
18V F7 4A 125V
18V F6 4A 125V
0V
D1
D2
D3
D4
D5
D6
C1 35V2200
C2 35V2200
C3 50V1
C4 50V1
C5 50V1
C6 50V1
CN1
+15
−15
E
(+15)
(−15)
(E)
MB

NOTES:
- IC'S
  IC1: AN7818
  IC2: SVIG7918H
  IC3: AN7815
  IC4: SVIG7915H
- DIODES
  D1~6: SVDS2V20

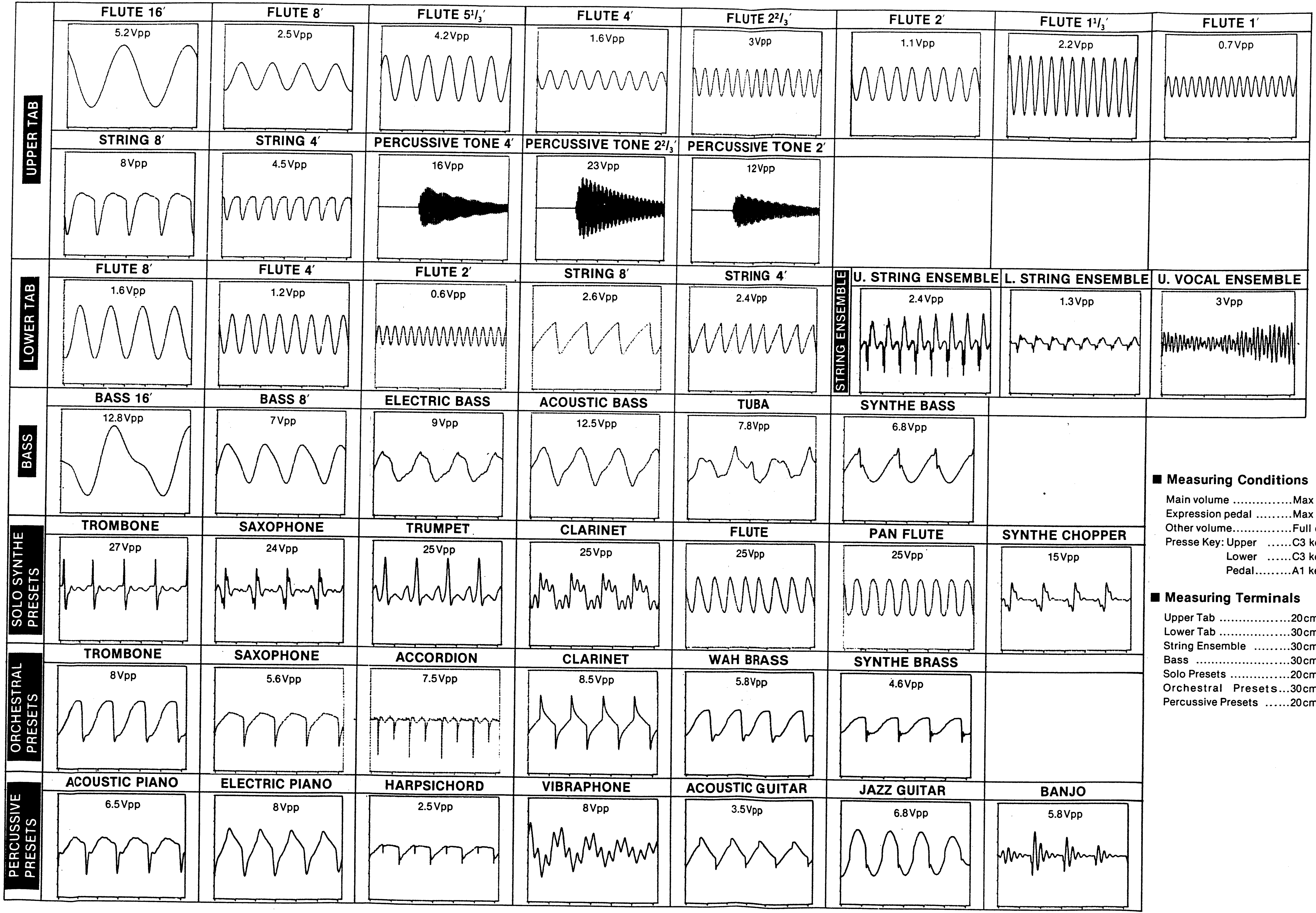
SXPGB11903


IC3
IC1
IC4
IC2
JP1
JP2
JP5
JP6
JP7
JP8
JP9
JP10
JP12
C1 35V2200
C2 35V2200
C3 50V1
C4 50V1
C5 50V1
C6 50V1
D1
D2
D3
D4
D5
D6
F6 4A 125V
F7 4A 125V
+15
−15
18V
18V
0V
CN1

NOTES:
- IC'S
  IC1: AN7818
  IC2: SVIG7918H
  IC3: AN7815
  IC4: SVIG7915H
- DIODES
  D1~6: SVDS2V20

SX-E66 OUTPUT WAVEFORMS

The waveform shown below may somewhat change due to variation of the products.



■ Measuring Conditions

Main volume ....Max
Expression pedal ....Max
Other volume...............Full or Max
Presse Key: Upper ......C3 key
Lower ......C3 key
Pedal.........A1 key

■ Measuring Terminals

Upper Tab ....20cm speaker **SP2S**
Lower Tab ....30cm speaker **SP1**
String Ensemble ....30cm speaker **SP1**
Bass ....30cm speaker **SP1**
Solo Presets ....20cm speaker **SP2S**
Orchestral Presets...30cm speaker **SP1**
Percussive Presets ......20cm speaker **SP2S**

REPLACEMENT PARTS LIST...Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production.
   Tone generator module P.C.B. (SXPG11265) and Musical display P.C.B. (SXEG10A) are supplied the same as for ordinary electrical parts.
2. Important safety notice
   Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ ELECTRICAL PARTS

	Part No.	Description	Per/Set
		PRINTED CIRCUIT BOARDS	
○	SXPGB11741	Tone Generator	1
○	SXPG11265	Tone Generator Module	1
○	SXPGA11741	Organ	1
○	SXPG11292	Percussive Tone	1
○	SXPGA11792	Percussive Presets	1
○	SXPGA11302	Orchestral Presets	1
○	SXPG11683	Accompaniment	1
○	SXPG11275	System Assigner	1
○	SXPG11321	Solo·Synthe Presets	1
○	SXPGB11302	Selecter	1
○	SXPG11322	Bass	1
○	SXPG11311	Drum Percussion	1
○	SXPGA11342	Tremolo & Phaser Modulation	1
○	SXPGB11342	Celeste & String Ensemble	1
○	SXPGB11792	Mixing	1
○	SXPG11351	Reverb	1
○	SXPG11363	Mother Board	1
○	SXEG10A	Musical Display	1
○	SXPG11421	Upper Control Panel Left	1
○	SXPG11431	Upper Control Panel Right	1
○	SXPGA11442	Control Panel Switch Left	1
○	SXPGB11441	Control Panel Switch Right	1
○	K80VPB4A	Upper Keyboard	1
○	K80VPB2A	Lower Keyboard	1
	SXPG11701	Pedal Keyboard	1
○	SXPG11522	Jack	1
○	SXPG11524	Jack, (MC) only	1
○	SXPG11575	Network 1	1
○	SXPG11803	Network 2	1
	SXPG10322	Expression	1
○	SXPGA11901	Power Supply 1 } Except for (MC), (XT)	1
○	SXPGB11901	Power Supply 2	1
○	SXPGA11903	Power Supply 1 } (MC), (XT) only	1
○	SXPGB11903	Power Supply 2	1
○	SXPG11553	Amp & Power Supply } (EN, EL, EH, EW, EF, EP, EB, EI, EG)	1
○	SXPG11661	AC Power Supply	1
○	SXPG11553	Amp & Power Supply } (EK, XL, XR, XS, X, XX, XV)	1
○	SXPG11663	AC Power Supply	1
○	SXPG11554	Amp & Power Supply } (MC, XT)	1
○	SXPG11672	AC Power Supply	1

	Part No.	Description		Per/Set
		INTEGRATED CIRCUITS		
○	SVIG3256PC35	256K Bit Mask ROM	DP	1
○	SVIG3256PC36	256K Bit Mask ROM	DP	1
○	SVIG3256PC37	256K Bit Mask ROM	SAS	1
○	SVIGM512820R	16K Bit CMOS Static RAM	SAS	1
○	SVIG23128196	128K Bit Mask Programmable ROM	SPS	1
○	SVIG2364096	64K Bit Mask Programmable ROM	BAS	1
○	SVIG7811G028	1 Chip, 8-Bit Microcomputer	SAS	1
○	SVIGM8041111	1 Chip, 8-Bit Microcomputer	OPS	1
○	SVIG8049569	1 Chip, 8-Bit Microcomputer	SPS, BAS	2
○	SVIG65002014	Gate Array	SAS	1
○	SVIG65002017	Gate Array	SAS	1
○	SVIG65002018	Gate Array	SEL	1
○	SVIG65002019	Gate Array	SPS, BAS	2
○	SVIG65010021	Gate Array	DP	1
○	SVIG65010022	Gate Array	REV	1
○	SVIGM5K4164	Dynamic RAM	REV	1
○	SVIGM5225L	ADM (Adapt Differential Modulation)	REV	16
	SVIGM74LS00	Quadruple 2-Input Positive NAND Gates	SAS	1
	SVIGM74LS02	Quadruple 2-Input Positive NOR Gates	SAS	1
	SVIGM74LS05	Hex Inverter with Open Collector Output	JACK	1
	SVIGM74LS32	Quadruple 2-Input Positive OR Gates	SAS	1
	SVIGM74LS138	Decoder	SAS	2
	SVIGMSM4011	Quadruple 2-Input NAND Gates	LPM, CSM	9
	SVIGTC40H000	Quadruple 2-Input NAND Gates	REV	1
	SVIGTC40H002	Quadruple 2-Input Positive NOR Gates	ACC	1
	SVIGTC40H004	Hex Inverters	SAS, TG, OPS	3
○	SVIGTC40H374	Octal D-Type Flip-Flops	ACC, PPS	3
	SVIGTC40H393	4-bit Binary Counter	TG	1
	SVIGTC4013BP	Dual D-Type Flip-Flops	ACC	1
	SVIGTC40174B	Hex D-Type Flip-Flops	PCT	1
○	SVIGTC4053BP	2-Channel Multiplexer	OPS	1
	SVIGHD14051B	8-Channel Multiplexer	OPS	1
○	SVIGHD14046B	Phase-Locked Loop	SPS, BAS	2
	SVIGM53217	Hex Buffers (Open Collector)	—	18
○	SVIGM53216	Hex Inverters	SAS, ACC	2
○	SVIGM5218L	Operational Amplifier	—	103
○	SVIGNJM082D	Operational Amplifier	—	4
	SVIGUPC624C	8-bit D-A Converter	SPS, BAS, DP	3
	SVIGBA6110	VCA (Voltage Controlled Amplifier)	—	18
○	SVIGBA6704	VCF (Voltage Controlled Filter)	ACC, OPS	2
	SVIGUPD4066B	Quadruple Bilateral Switch	—	18
	SVIGLM1894N	Noise Reduction	OPS, MIX	4
○	MN15621GSA	4 Bit 1 Chip Microcomputer	—	8
	MN3006	BBD for Audio Signal Delays (128-stage)	LPM, CSM	5
	MN3004	BBD for Audio Signal Delays (512-stage)	CSM	3
	AN6913	Dual Comparator	MIX, LPM, REV	5
	AN6552F	Operational Amplifier	SPS, BAS	2
	AN7060	Power Amp Driver	AS	3
	AN7815	Voltage Regulator	PS2	1
○	AN7818	Voltage Regulator, (MC, XT) only	PS2	1
○	SVIGSI3052P	Voltage Regulator	PS1	2
	SVIGUPC7915H	Voltage Regulator	AS, PS2	2
○	SVIGUPC7918H	Voltage Regulator, (MC, XT) only	PS2	1
	SVIGSTK0029N	Power IC	AS	1
○	SVIGSTK2028	Power IC	AS	1

	Part No.	Description	Per/Set
		TRANSISTORS	
	2SA830B		16
	2SA1015GR		21
	2SA1123R		3
○	2SB950QR		1
	2SC1047C		21
	2SC2320LFG		38
○	2SC1685R		2
○	2SJ40CD	FET	14
○	2SK381CD	FET	2
		DIODES	
S	MA162A	MA150IR	146
○	MA165TA5VT		140
	MA1062	Zener	3
	MA1200	Zener	1
	SVDS2V20 △	Rectifier	6
	SVDS3V20 △	Rectifier	4
	SVDGSM1A02LF	Rectifier	1
		COILS, QUARTZ & CERAMIC OSCILLATOR	
○	SVQG43U1200A	12MHz, Quartz Oscillator	1
○	SVQGCSA110MT	11MHz, Ceramic Oscillator	2
○	SVQGCSA800MT	8MHz, Ceramic Oscillator	1
○	SVQGCSA600MT	6MHz, Ceramic Oscillator	1
○	EF0A4R5M01A	4.5MHz, Ceramic Oscillator	8
○	SLCSC821KU	0.82mH Coil (Network)	1
○	SLCSC331KU	0.33mH Coil (Network)	2
○	ELQS180KB	18μH, Coil (Master Clock OSC)	2
		LED'S, LAMP	
	LN29RP	LED, Power Indicator	1
○	SEL2210SLFM1	LED (red)	143
○	SEL2710KLFM1	LED (yellow)	16
	XAMR55P	Lamp, Expression	1
		CDS	
	SVEG5	Light Sensitive Device	1
		SWITCHES	
○	ESB90712V △	Power Switch	1
○	ESE37209 △	Voltage Selector, (EK, XL, XS, X, XX, XV)	1
○	SSHG1029A	Switch, for Tang Type	52
○	SSHG1030A	Switch, for Push Type	135
	SSSG2001A	Line Out Channel Selector Switch	1
		VARIABLE RESISTORS	
○	EVD3520B24G	20KΩB, Tempo Control	1
○	EWHD5A576A54	50KΩA, Mic Volume	1
		SEMI-FIXED RESISTORS	
○	EVN60AA00B54	50KΩ	5
○	EVN60AA00B24	20KΩ	6
○	EVN60AA00B14	10KΩ	1
○	EVN60AA00B53	5KΩ	1
○	EVN60AA00B23	2KΩ	2
		COMPONENTS COMBINATIONS	
○	SREG8A0462M	Custom Block Resistor	4
○	EXBP84222MM	2.2KΩ×4, Block Resistor	1
○	EXBP84103MM	10KΩ×4, Block Resistor	1
○	EXBP86103MM	10KΩ×6, Block Resistor	1
○	EXBP86122MM	1.2KΩ×6, Block Resistor	1
○	EXBP88222MM	2.2KΩ×8, Block Resistor	4
○	EXBP88472MM	4.7KΩ×8, Block Resistor	3
○	EXBP88103MM	10KΩ×8, Block Resistor	2
○	EXBP88223MM	22KΩ×8, Block Resistor	1
○	EXBP88334MM	330KΩ×8, Block Resistor	1
○	EXBP88105MM	1MΩ×8, Block Resistor	2
○	EXATA223S	Noise Suppression Filter	8
		JACKS	
○	SJJG210A	Mic Jack	1
○	SJJG220A	Aux Jack (Except for [MC])	1
○	SJJG230A	Line Out Terminal	1
○	SJJG240A	Headphone Jack	1
○	SJJG250A	F.D Jack	1
		RELAYS	
○	SSYGMR5212S	Relay	3
○	SSYGMR3112D	Relay	1
		SPEAKERS	
○	EAS30PL109S	30cm, 8Ω	1
○	EAS20PM223SA	20cm, 6Ω	2
○	EAS20PM224S	20cm, 6Ω	1
○	EAS6HH11S	6cm, 6Ω	2
		FUSES	
	XBA2C40TR0 △	4A, 250V } (EN, EL, EH, EW, EF, EP, EB, EI, EG)	1
	XBA2C20TR0 △	2A, 250V	1
	XBA2C40TR0 △	4A, 125V } (EK, XL, XR, XS, X, XX, XV)	6
	XBA2C20TR0 △	3A, 125V	2
	XBA1F30NU14△	3A, 125V } (MC, XT)	5
	XBA1F40NU14△	4A, 125V	2
		TRANSFORMERS, LINE FILTER	
○	SLTG5R11 △	Power Transformer	1
○	SLTG5R12 △	Power Transformer, (MC, XT) only	1
○	SLTGLF1 △	Line Filter	1
		AC CORD, PLUG	
	SJAG24 △	AC Cord	1
	SJAG23 △	AC Cord (XL, XR)	1
	SJAG22 △	AC Cord (MC, XT)	1
	SJAG25 △	AC Cord (EK, XS)	1
	SJAG26 △	AC Cord (X, XX, XV)	1
	SJP5213-1 △	Attachment plug, (X, XX, XV) only	1

	Part No.	Description	Per/ Set
ASSEMBLY PARTS			
	SXVG5020A	Expression Unit	1
WIRING PARTS (See wiring connection diagram on page II-3, II-4.)			
○	SWKG029ZA	Connector, with Wire	1
○	SWKG0419LSA	Connector, with Wire (Except for [MC])	1
○	SWKG0428LSA	Connector, with Wire (MC) only	1
○	SWKG0312LSA	Connector, with Wire	1
○	SWKG0423LSA	Connector, with Wire	1
○	SWKG0814LSC	Connector, with Wire	1
○	SWKG0825LSA	Connector, with Wire	1

	Part No.	Description	Per/ Set
○	SWKG104ZA	Connector, with Wire	1
○	SWKG135LSB	Connector, with Wire	1
○	SWKG0421ZA	Connector, with Wire	1
○	SWKG056ZE	Connector, with Wire	1
○	SWKG0621ZA	Connector, with Wire	1
○	SWKG0623ZA	Connector, with Wire	1
○	SWKG0318ZA	Connector, with Wire	1
○	SWKG0420ZA	Connector, with Wire	1
○	SWKG0422ZB	Connector, with Wire (EK, XS, XL, XR, X, XX, XV) only	1

■ Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W	F : ±1%
ERD—F : Carbon Flame-Proof	2 : 1/4W	G : ±2%
	10 : 1/8W	J : ±5%
ERO : Metal Film	25 : 1/4W	K : ±10%
	50 : 1/2W	
ERG : Metal Oxide	1 : 1W	
ERQ : Fuse Type Metal	2 : 2W	

Example

ERD	S2	T	J	101
Type	Wattage	Shape	Tolerance	Value

ERD	2	F	C	G	101
Type	Wattage	Flame Proof	Fuse Type	Tolerance	Value

ERO	10	T	K	F	2201
Type	Wattage	Shape	Peculiarity	Tolerance	Value

ERG	1	AN	J	121
Type	Wattage	Shape	Tolerance	Value

ERQ	1	C	K	P	R33
Type	Wattage	Flame Proof	Tolerance	Shape	Value

■ Numbering System of Capacitor

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V DC	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1A : 10V	1E : 25V DC	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1C : 16V		K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1E : 25V		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	1V : 35V		
ECQV : TF Capacitor	(TF)	1H : 50V		
ECC : Ceramic	○	50Y : 50V		
ECK : Ceramic	○	50M : 50V		
ECQM : Polyester		16M : 16V		
		50Z : 50V		

Example

ECEA	0J	U	330
Type	Voltage	Peculiarity use	Value

ECEA	50	M (Z)	R47	R
Type	Voltage	Peculiarity use	Value	Special use

ECQV (M)	1H	102	J
Type	Voltage	Value	Tolerance

ECC (K)	R	1H	220	J
Type	Shape	Voltage	Value	Tolerance

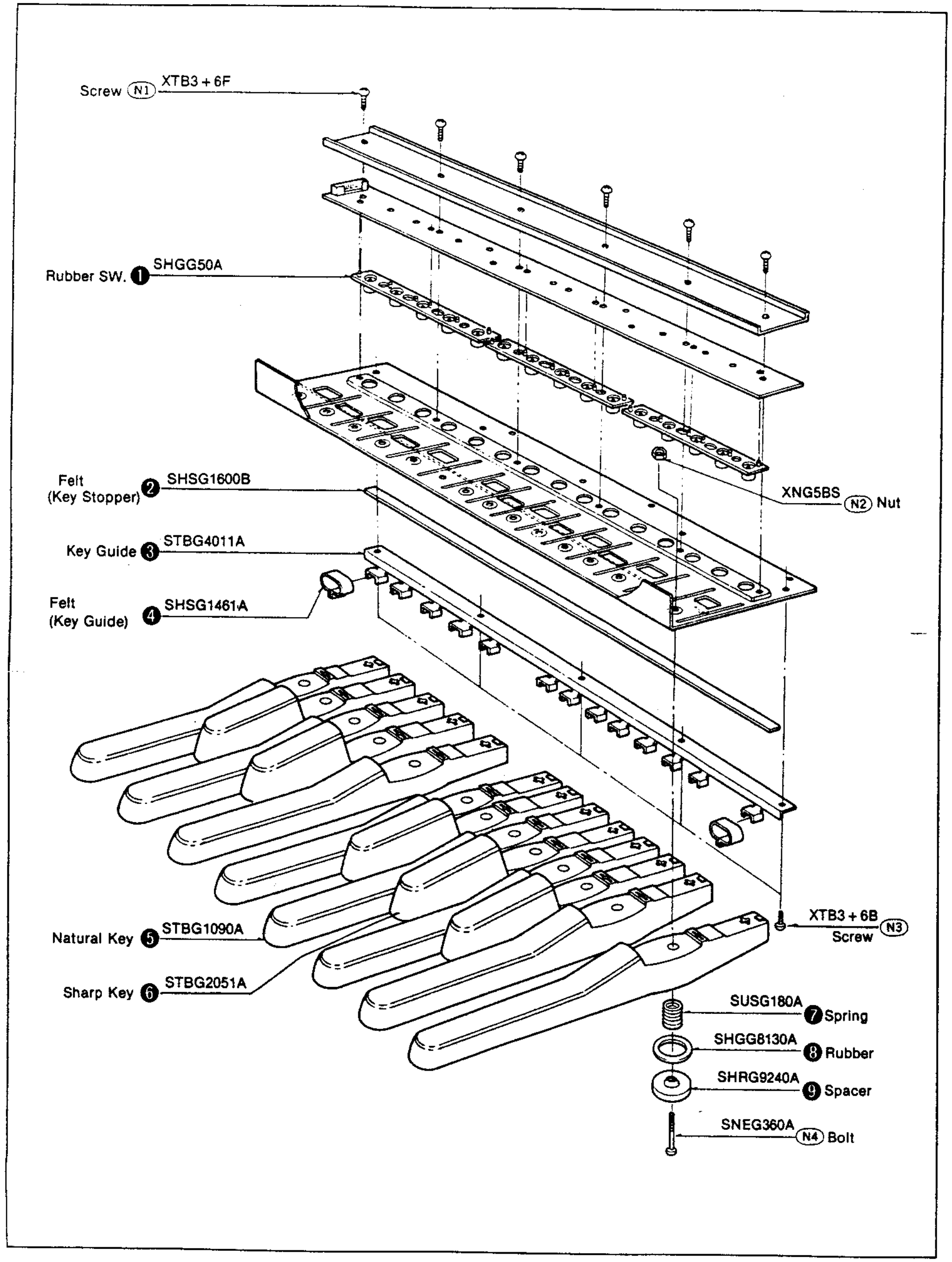
	Part No.	Description	Per/ Set
RESISTORS			
	ERDS2TJ100	10Ω	
	ERDS2TJ120	12Ω	
	ERDS2TJ150	15Ω	
	ERDS2TJ180	18Ω	
	ERDS2TJ220	22Ω	
	ERDS2TJ270	27Ω	
	ERDS2TJ330	33Ω	1
	ERDS2TJ390	39Ω	
	ERDS2TJ470	47Ω	50
	ERDS2TJ560	56Ω	
	ERDS2TJ680	68Ω	
	ERDS2TJ820	82Ω	
	ERDS2TJ101	100Ω	6
	ERDS2TJ121	120Ω	
	ERDS2TJ151	150Ω	
	ERDS2TJ181	180Ω	
	ERDS2TJ221	220Ω	3
	ERDS2TJ271	270Ω	
	ERDS2TJ331	330Ω	12
	ERDS2TJ391	390Ω	
	ERDS2TJ471	470Ω	9
	ERDS2TJ561	560Ω	2

	Part No.	Description	Per/ Set
	ERDS2TJ681	680Ω	11
	ERDS2TJ821	820Ω	1
	ERDS2TJ102	1KΩ	63
	ERDS2TJ122	1.2KΩ	75
	ERDS2TJ152	1.5KΩ	4
	ERDS2TJ182	1.8KΩ	
	ERDS2TJ222	2.2KΩ	37
	ERDS2TJ272	2.7KΩ	2
	ERDS2TJ332	3.3KΩ	71
	ERDS2TJ392	3.9KΩ	2
	ERDS2TJ472	4.7KΩ	130
	ERDS2TJ562	5.6KΩ	4
	ERDS2TJ682	6.8KΩ	44
	ERDS2TJ822	8.2KΩ	38
	ERDS2TJ103	10KΩ	159
	ERDS2TJ123	12KΩ	20
	ERDS2TJ153	15KΩ	57
	ERDS2TJ183	18KΩ	22
	ERDS2TJ223	22KΩ	78
	ERDS2TJ273	27KΩ	29
	ERDS2TJ333	33KΩ	112
	ERDS2TJ393	39KΩ	21
	ERDS2TJ473	47KΩ	92

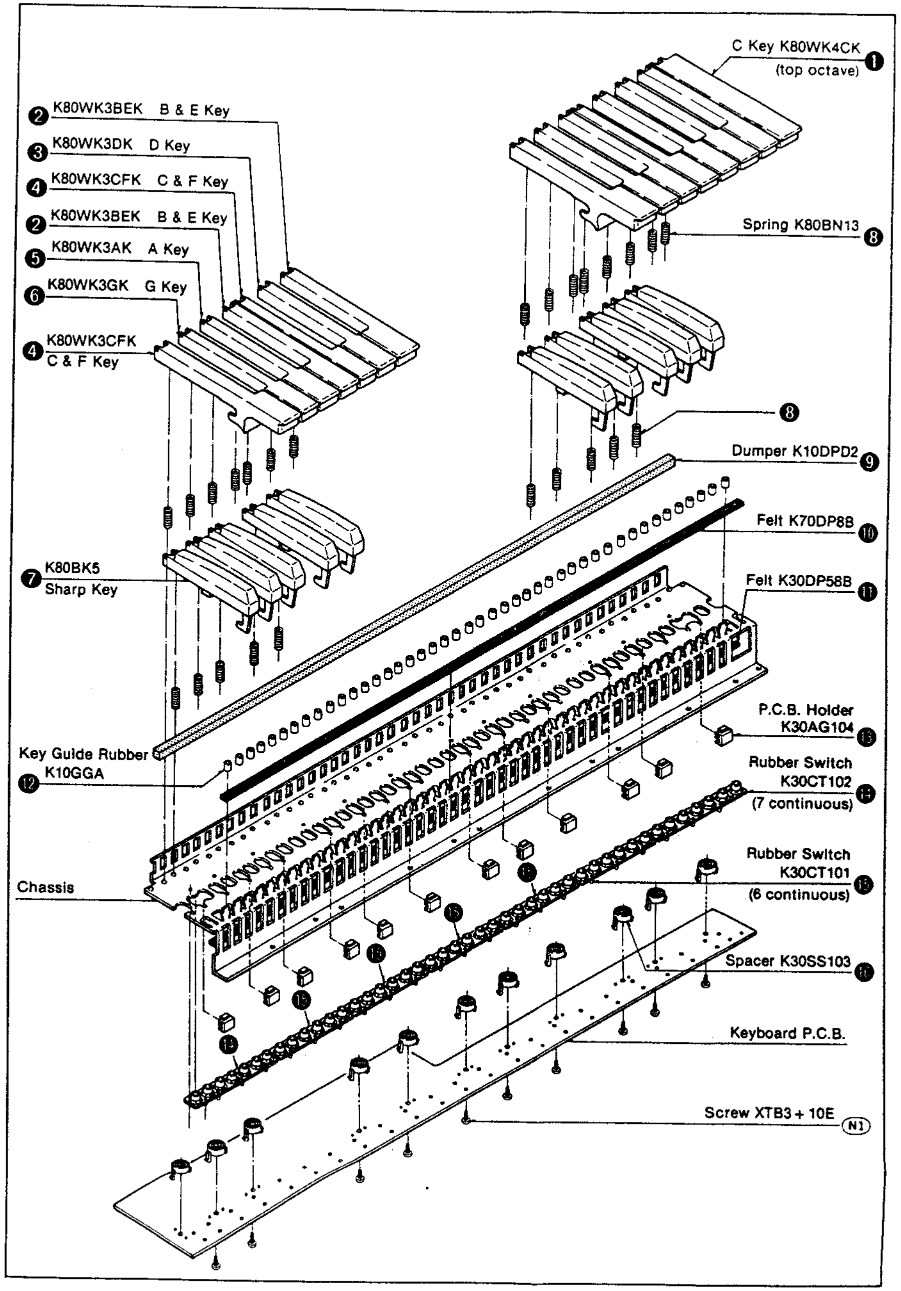
	Part No.	Description	Per/ Set
	ERDS2TJ563	56KΩ	28
	ERDS2TJ683	68KΩ	47
	ERDS2TJ823	82KΩ	22
	ERDS2TJ104	100KΩ	112
	ERDS2TJ124	120KΩ	23
	ERDS2TJ154	150KΩ	79
	ERDS2TJ184	180KΩ	23
	ERDS2TJ224	220KΩ	46
	ERDS2TJ274	270KΩ	4
	ERDS2TJ334	330KΩ	28
	ERDS2TJ394	390KΩ	
	ERDS2TJ474	470KΩ	36
	ERDS2TJ564	560KΩ	1
	ERDS2TJ684	680KΩ	19
	ERDS2TJ824	820KΩ	
	ERDS2TJ105	1MΩ	23
	ERDS2TJ125	1.2MΩ	
	ERDS2TJ155	1.5MΩ	2
	ERDS2TJ185	1.8MΩ	
	ERDS2TJ225	2.2MΩ	2
	ERDS2TJ275	2.7MΩ	
	ERDS2TJ335	3.3MΩ	
	ERDS2TJ395	3.9MΩ	
	ERDS2TJ475	4.7MΩ	
	ERDS2TJ565	5.6MΩ	
	ERDS2TJ685	6.8MΩ	
	ERDS2TJ825	8.2MΩ	
△	ERD25FVJ4R7	🄵 1/4W 4.7Ω	3
△	ERD25FVJ470	🄵 1/4W 47Ω	3
△	ERD25FVJ680	🄵 1/4W 68Ω	1
△	ERD2FCG220	🄵 1/4W 22Ω, Fuse Type	20
△	ERD2FCG101	🄵 1/4W 100Ω, Fuse Type	1
△	ERD2FCG100	🄵 1/4W 10Ω, Fuse Type	20
△	ERD2FCJ4R7	🄵 1/4W 4.7Ω, Fuse Type	13
△	ERD2FCG6R8	🄵 1/4W 6.8Ω, Fuse Type	2
△	ERQ3CKR33	🄵 3W 0.33Ω, Fuse Type	1
△	ERD50FJ471	🄵 1/2W 470Ω	2
△	ERD50FJ331	🄵 1/2W 330Ω	2
	ERO10TKF2201	1/8W, 2.2KΩ, ±1%	2
CAPACITORS			
	ECEA0JU330	6.3V, 33μF	3
	ECEA0JU470	6.3V, 47μF	3
	ECEA0JU101	6.3V, 100μF	4
	ECEA0JU221	6.3V, 220μF	5
	ECEA0JU331	6.3V, 330μF	1
	ECEA1CU100	16V, 10μF	10
	ECEA1CU101	16V, 100μF	20
	ECEA1CU221	16V, 220μF	1
	ECEA1CU331	16V, 330μF	1
	ECEA1CK470	16V, 47μF	13
	ECEA1EU4R7	25V, 4.7μF	2
	ECEA1EU330	25V, 33μF	28
	ECEA1EU470	25V, 47μF	15
	ECEA1EU101	25V, 100μF	1
	ECEA1EU222	25V, 2200μF	2
	ECEA1VU100	35V, 10μF	3
	ECEA1VS222	35V, 2200μF	2
	ECEA1HK0R1	50V, 0.1μF	6
	ECEA1HKR22	50V, 0.22μF	1
	ECEA1HUR47	50V, 0.47μF	14

	Part No.	Description	Per/ Set
	ECEA1HU010	50V, 1μF	35
	ECEA1HU2R2	50V, 2.2μF	6
	ECEA1HU3R3	50V, 3.3μF	1
	ECET50R682SW	50V, 6800μF	2
	ECEA1CN100S	Ⓝ 16V, 10μF	4
	ECEA1HN010S	Ⓝ 50V, 1μF	28
	ECEA50Y33K	Ⓨ 50V, 33μF	1
	ECEA50Y3R3K	Ⓨ 50V, 3.3μF	2
	ECEA50ZR1	Ⓩ 50V, 0.1μF	5
	ECEA50ZR22	Ⓩ 50V, 0.22μF	5
	ECEA50ZR33	Ⓩ 50V, 0.33μF	16
	ECEA50ZR68	Ⓩ 50V, 0.68μF	4
	ECEA16M10R	(MS) 16V, 10μF	8
	ECEA50M1R	(MS) 50V, 1μF	4
	ECEA50M2R2R	(MS) 50V, 2.2μF	1
	ECQM1H102KV	0.001μF	64
	ECQM1H152KV	0.0015μF	20
	ECQM1H222KV	0.0022μF	20
	ECQM1H332KV	0.0033μF	14
	ECQM1H472KV	0.0047μF	56
	ECQM1H682KV	0.0068μF	20
	ECQM1H103KV	0.01μF	41
	ECQM1H153KV	0.015μF	11
	ECQM1H223KV	0.022μF	12
	ECQM1H333KV	0.033μF	12
	ECQM1H473KV	0.047μF	40
	ECQM1H683KV	0.068μF	11
	ECQM1H104KV	0.1μF	4
	ECQM1H474KV	0.47μF	1
	ECQV1H102JZ	(TF) 0.001μF	12
	ECQV1H152JZ	(TF) 0.0015μF	10
	ECQV1H222JZ	(TF) 0.0022μF	14
	ECQV1H332JZ	(TF) 0.0033μF	8
	ECQV1H472JZ	(TF) 0.0047μF	14
	ECQV1H682JZ	(TF) 0.0068μF	12
	ECQV1H103JZ	(TF) 0.01μF	14
	ECQV1H153JZ	(TF) 0.015μF	8
	ECQV1H223JZ	(TF) 0.022μF	4
	ECQV1H333JZ	(TF) 0.033μF	2
	ECQV1H473JZ	(TF) 0.047μF	6
	ECQV1H683JZ	(TF) 0.068μF	3
	ECQV1H104JZ	(TF) 0.1μF	10
	ECQV1H154JZ	(TF) 0.15μF	2
	ECQV1H224JZ	(TF) 0.22μF	3
	ECQV1H334JZ	(TF) 0.33μF	5
	ECQV1H474JZ	(TF) 0.47μF	3
	ECCR1H220J5	○ 22PF	14
	ECCR1H330J5	○ 33PF	17
	ECCR1H470J5	○ 47PF	5
	ECCR1H680J5	○ 68PF	4
	ECCR1H101J5	○ 100PF	51
	ECCR1H151J5	○ 150PF	18
	ECCR1H221J5	○ 220PF	19
	ECCR1H331J5	○ 330PF	22
	ECCR1H471J5	○ 470PF	31
	ECCR1H681J5	○ 680PF	18
	ECKR1E473ZV	○ 0.047μF	121
△	ECKCVA1472MF	○ 4700PF, Line Capacitor	1
△	ECQU2A103MF	0.01μF, 250V, Across-the-Line Capacitor	1
△	ECQU1A103MH	0.01μF, 125V, Across-the-Line Capacitor (MC)	1
	EECW2R3A3R3E	3.3F, 2.3V, Liquid Electrolyte Double layer	3

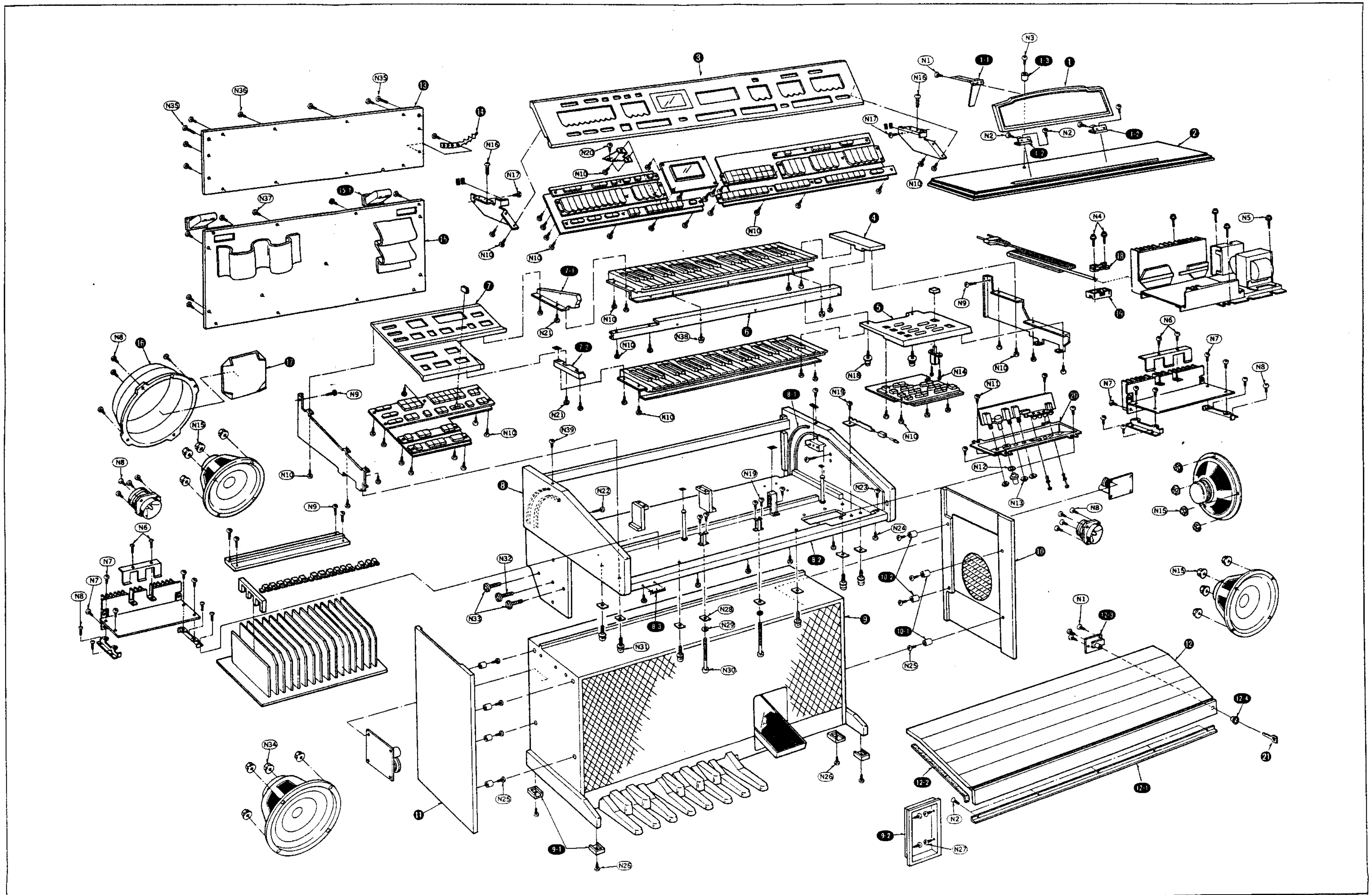
EXPLODED VIEWS OF PEDAL KEYBOARD


Screw (N1) XTB3 + 6F
Rubber SW. ❶ SHGG50A
Felt (Key Stopper) ❷ SHSG1600B
Key Guide ❸ STBG4011A
Felt (Key Guide) ❹ SHSG1461A
Natural Key ❺ STBG1090A
Sharp Key ❻ STBG2051A
XNG5BS (N2) Nut
XTB3 + 6B (N3) Screw
SUSG180A ❼ Spring
SHGG8130A ❽ Rubber
SHRG9240A ❾ Spacer
SNEG360A (N4) Bolt

EXPLODED VIEWS OF MANUAL KEYBOARD


C Key K80WK4CK (top octave) ❶
❷ K80WK3BEK B & E Key
❸ K80WK3DK D Key
❹ K80WK3CFK C & F Key
❷ K80WK3BEK B & E Key
❺ K80WK3AK A Key
❻ K80WK3GK G Key
❹ K80WK3CFK C & F Key
Spring K80BN13 ❽
❽
❼ K80BK5 Sharp Key
Dumper K10DPD2 ❾
Felt K70DP88 ❿
Felt K30DP58B ⓫
Key Guide Rubber ⓬ K10GGA
P.C.B. Holder K30AG104 ⓭
Rubber Switch K30CT102 (7 continuous) ⓮
Rubber Switch K30CT101 (6 continuous) ⓯
⓭
⓯
⓯
⓯
⓯
⓭
Chassis
Spacer K30SS103 ⓰
Keyboard P.C.B.
Screw XTB3 + 10E (N1)

EXPLODED VIEWS OF CABINET


N3
N1
1-1
1-3
1
3
N16
N35
N36
13
N35
14
N17
N2
N2
1-2
2
1-2
N20
N16
N17
N10
N10
N37
15-1
15
N10
N10
N10
N10
N4
N5
4
18
N10
7-1
7
N9
19
N21
N10
6
5
N8
16
17
N38
N10
N6
N7
7-2
N18
N14
N8
N9
N21
N10
N11
N7
20
N15
N10
8-1
N19
N10
N39
N12
N8
N10
8
N22
N19
N23
N13
N8
N9
N15
N6
N24
10
N7
N32
8-2
10-2
N15
N7
N8
N33
8-3
N28
N29
9
N1
12-3
N31
10-1
N30
N25
12
12-4
N34
21
N26
12-2
12-1
11
N25
N2
9-2
N27
9-1
N26

REPLACEMENT PARTS LIST...Mechanism

■ MECHANICAL PARTS

	Ref. No.	Part No.	Description	Per/ Set
CABINET				
○	1	SKGG2K30C	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	1-3	SHGG9040A	Catch Rubber	1
○	2	SKPG490A	Top Cover	1
○	3	SGWG1370A	Upper Control Panel	1
○	4	SGWG5090A	Upper Right End Cover Panel	1
○	5	SGWG3120E	Lower Right End Cover Panel	1
○	6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8010C	Left End Cover Panel	1
○	7-1	SGEG180A	Ornament	1
○	7-2	SGEG160A	Ornament	1
○	8	SKMG720AS	Cabinet, Upper Unit	1
○	8-1	SKEG7340A	Sliding Cover Guide	2
○	8-2	SGXG1060A	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	9	SKMG750AS	Cabinet, Lower Unit	1
○	9-1	SHRG2080A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA203A	Side Panel (Right)	1
○	10-1	SHGG9040B	Catch Rubber (Black)	2
○	10-2	SHGG9040A	Catch Rubber (Brown)	2
○	11	SKZGA193A	Side Panel (Left)	1
○	12	SKZG8170A	Sliding Cover Assembly	1
○	12-1	SGXG413A	Aluminium Ornament	1
	12-2	SHSG1600A	Felt	2
○	12-3	SBEG30A	Lock	1
○	12-4	SBEG40A	Staple	1
○	13	SKZG7280B	Rear Panel (Upper)	1
	14	SHRG104	Cord Band	1
○	15	SYUG1040A	Rear Panel (Lower)	1
○	15-1	SKHG30A	Handle	2
○	16	SHRG8130A	Speaker Cover	1
○	17	SHSG9140A	Sound Absorbing Material	1
	18	SHRG1120A	AC Cord Clamper	1
	19	SHRG1110A	AC Cord Clamper	1
○	20	SMKG1581A	Jack Panel	1
ACCESSORIES				
○	21	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
BENCH				
○	SZ-CM24A			1

MC Products for Canada only

	Ref. No.	Part No.	Description	Per/ Set
CABINET [MC]				
○	1	SKGG1L20A	Music Rack Assembly	1
	1-1	SBLG7	Stay	1
	1-2	SBHG5003	Hinge	2
○	1-3	SHGG9040A	Catch Rubber	1
○	2	SKPG490B	Top Cover	1
○	3	SGWG1370B	Upper Control Panel	1
○	4	SGWG5090B	Upper Right End Cover Panel	1
○	5	SGWG3120F	Lower Right End Cover Panel	1
○	6	SGXG1030AS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8010F	Left End Cover Panel	1
○	7-1	SGEG180B	Ornament	1
○	7-2	SGEG160B	Ornament	1
○	8	SKMG720BS	Cabinet, Upper Unit	1
○	8-1	SKEG7340A	Sliding Cover Guide	2
○	8-2	SGXG1060B	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	9	SKMG750BS	Cabinet, Lower Unit	1
○	9-1	SHRG2080A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA203B	Side Panel (Right)	1
○	10-1	SHGG9040B	Catch Rubber (Black)	2
○	10-2	SHGG9040A	Catch Rubber (Brown)	2
○	11	SKZGA193B	Side Panel (Left)	1
○	12	SKZG8170B	Sliding Cover Assembly	1
○	12-1	SGXG413A	Aluminium Ornament	1
	12-2	SHSG1600A	Felt	2
○	12-3	SBEG30A	Lock	1
○	12-4	SBEG40A	Staple	1
○	13	SKZG7280B	Rear Panel (Upper)	1
	14	SHRG104	Cord Band	1
○	15	SYUG1040A	Rear Panel (Lower)	1
○	15-1	SKHG30A	Handle	2
○	16	SHRG8130A	Speaker Cover	1
○	17	SHSG9140A	Sound Absorbing Material	1
	18	SHRG1120A	AC Cord Clamper	1
	19	SHRG1110A	AC Cord Clamper	1
○	20	SMKG1582B	Jack Panel	1
ACCESSORIES				
○	21	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
BENCH				
○	SZ-CM44B			1

SCREWS and WASHERS

	Ref. No.	Part No.	Description	Per/Set
	N1	XTB3+10A	Screw	
	N2	XTS3+10AFVC	Screw	
	N3	XTB3+12AFZ	Screw	
	N4	XYN3+F20S	Screw with Washer	
	N5	XYN4+F12S	Screw with Washer	
	N6	XTV3+6C	Screw	
	N7	XTB3+6F	Screw	
	N8	XTT4+14AFVC	Screw	
	N9	XTB35+20A	Screw	
	N10	XTB4+12A	Screw	
	N11	XTB35+10A	Screw	
	N12	SNE4021-1	Nut	
	N13	XNS12FZ	Nut	
	N14	SNEG740A	Screw	
	N15	SNE491	Nut	
	N16	XTT4+12AFR	Screw	
	N17	XTB35+12A	Screw	
	N18	XYN4+F10S	Screw with Washer	
	N19	XTB35+8A	Screw	
	N20	XTB35+10AFR	Screw	
	N21	XTB4+12G	Screw	
	N22	XTB35+35A	Screw	
	N23	XTB3+10AFVC	Screw	
	N24	XTT35+10AFVC	Screw	
	N25	XTB3+14A	Screw	
	N26	XTB35+25A	Screw	
	N27	XTB3+14AFVC	Screw	
	N28	SNEG150A	Washer	
	N29	XWA5B	Washer	
	N30	XSN5+85S	Screw	
	N31	XYN5+C25S	Screw with Washer	
	N32	SNEG750A	Bolt (Black)	
	N33	SNEG750B	Bolt (Red)	
	N34	SNE499-1	Nut	
	N35	XTC4+25AFVC	Screw	
	N36	XTT4+16AFVC	Screw	
	N37	XTT4+25AFVC	Screw	
	N38	XYN5+C10S	Screw with Washer	
	N39	XTT4+30A	Screw	

MANUAL KEYBOARDS

	Ref. No.	Part No.	Description	Per/Set
○	1	K80WK4CK	Natural Key (Top Octave C Key)	1
○	2	K80WK3BEK	Natural Key (B and E Key)	7
○	3	K80WK3DK	Natural Key (D Key)	3
○	4	K80WK3CFK	Natural Key (C and F Key)	7
○	5	K80WK3AK	Natural Key (A Key)	4
○	6	K80WK3GK	Natural Key (G Key)	4
○	7	K80BK5	Sharp Key	18
○	8	K80BN13	Spring	44
	9	K10DPD2	Dumper	1
	10	K70DP8B	Felt	1
	11	K30DP58B	Felt	1
	12	K10GGA	Key Guide Rubber	44
	13	K30AG104	P.C.B. Holder	12
	14	K30CT102	Rubber Switch (7 continuous)	2
	15	K30CT101	Rubber Switch (6 continuous)	5
	16	K30SS103	Spacer	11
	N1	XTB3+10E	Screw	11

PEDAL KEYBOARD

	Ref. No.	Part No.	Description	Per/Set
	1	SHGG50A	Rubber Switch (5 continuous)	3
	2	SHSG1600B	Felt (Key Stopper)	1
	3	STBG4011A	Key Guide	1
	4	SHSG1460A	Felt (Key Guide)	13
	5	STBG1090A	Natural Key	8
	6	STBG2051A	Sharp Key	5
	7	SUSG180A	Spring	13
	8	SHGG8130A	Rubber	13
	9	SHRG9240A	Spacer	13
	N1	XTB3+6F	Screw	6
	N2	XNG5BS	Nut	13
	N3	XTB3+6B	Screw	5
	N4	SNEG360A	Bolt	13

SWITCH MOLD ASSEMBLY

	Part No.	Description	Per/Set
○	SSHG9032AA	upper harmonic coupler, volume, slow attack, full, long, mode selector	1
○	SSHG9017AA	upper tab voices, percussive tone	1
○	SSHG9027AA	U & L vocal ensemble volume string ensemble volume, U & L percussive presets and others	1
○	SSHG9022AA	orchestral conductor	1
○	SSHG6013AA	vibrato, lower harmonic coupler, volume	1
○	SSHG9016AA	multi-tremolo, celeste, lower tab voices	1
○	SSHG9025AA	Voice Setting Computer, U & L orchestral presets, U & L solo synthesizer presets	1
○	SSHG9038AA	bass, rhythm selector, drum percussion, temp control and others	1
○	SSHG6014AA	Program Chord Computer, techni-chord	1
○	SSHG5015AA	record, transpose, glide/rhythm, synchro, start/stop	1
○	SSHG9039AA	tuning, main volume, reverb, FSC, sustain	1

KNOB

	Part No.	Description	Per/Set
	SBNG6010G	Slide Volume Knob, tempo control	1
	SBNG4010A	Mic Volume Knob	1

BUTTONS

	Part No.	Description		Per/Set
	SBCG20I47	power switch		1
○	SBCG150G01	upper tab voices	upper orchestral conductor	1
○	SBCG140G01	percussive presets		1
○	SBCG140G02	organ presets		1
○	SBCG140G03	orchestral presets		1
○	SBCG140G04	solo synthe presets		1
○	SBCG140G06	string ensemble		1
○	SBCG140G07	vocal ensemble		1

	Part No.	Description		Per/Set
○	SBCG150H01	lower tab voices	lower orchestral conductor	1
○	SBCG140H01	percussive presets		1
○	SBCG140H02	organ presets		1
○	SBCG140H03	orchestral presets		1
○	SBCG140H04	solo synthe presets		1
○	SBCG140H06	string ensemble		1
○	SBCG140H07	vocal ensemble		1
○	SBCG140L01	I	Voice Setting Computer	1
○	SBCG140L02	II		1
○	SBCG140L03	III		1
○	SBCG140L04	IV		1
○	SBCG140L05	V		1
○	SBCG140L06	VI		1
○	SBCG140L07	VII		1
○	SBCG140D01	cancel		1
○	SBCG140E01	trombone	U & L orchestral presets	1
○	SBCG140E02	saxophone		1
○	SBCG140E03	accordion		1
○	SBCG140E04	clarinet		1
○	SBCG140E05	wah brass		1
○	SBCG140E06	synthe brass		1
○	SBCG170G00	full		1
○	SBCG140F01	trombone	U & L solo synthesizer presets	1
○	SBCG140F02	saxophone		1
○	SBCG140F03	trumpet		1
○	SBCG140F04	clarinet		1
○	SBCG140F05	flute		1
○	SBCG140F06	pan flute		1
○	SBCG140F07	synthe chopper		1
○	SBCG170G00	volume		2
○	SBCG160E00	vibrato	multi-tremolo/vibrato	1
○	SBCG130D01	chorus/tremolo		1
○	SBCG130A12	U. tab voices		1
○	SBCG130A13	L. tab voices		1
○	SBCG130A12	U. tab voices	celeste	1
○	SBCG130E01	U & L orchestral presets		1
○	SBCG130F01	U & L solo synthe presets		1
○	SBCG130A13	L. tab voices		1
○	SBCG160J00	cancel	harmonic coupler	1
○	SBCG160K00	2′, program		2
○	SBCG130A02	flute 8′	lower tab voices	1
○	SBCG130A04	flute 4′		1
○	SBCG130A06	flute 2′		1
○	SBCG130B01	string 8′		1
○	SBCG130B02	string 4′		1
○	SBCG170G00	volume		2
○	SBCG170G00	volume, U & L vocal ensemble string ensemble		6
○	SBCG140A01	I	upper organ presets	1
○	SBCG140A02	II		1

	Part No.	Description		Per/Set
○	SBCG140B01	acoustic piano	U & L percussive presets	1
○	SBCG140B02	electric piano		1
○	SBCG140B04	harpsichord		1
○	SBCG140B05	vibraphone		1
○	SBCG140B06	acoustic guitar		1
○	SBCG140B07	jazz guitar		1
○	SBCG140B09	banjo		1
○	SBCG170G00	full		1
○	SBCG130A01	flute 16′	upper tab voices	1
○	SBCG130A02	flute 8′		1
○	SBCG130A03	flute $5^{1}/_{3}$′		1
○	SBCG130A04	flute 4′		1
○	SBCG130A05	flute $2^{2}/_{3}$′		1
○	SBCG130A06	flute 2′		1
○	SBCG130A07	flute $1^{3}/_{5}$′		1
○	SBCG130A08	flute 1′		1
○	SBCG130B01	string 8′		1
○	SBCG130B02	string 4′		1
○	SBCG170G00	volume		2
○	SBCG160C00	slow attack		1
○	SBCG160J00	cancel	upper harmonic coupler	1
○	SBCG160K00	$2^{2}/_{3}$′, program		2
○	SBCG130A09	4′	percussive tone	1
○	SBCG130A10	$2^{2}/_{3}$′		1
○	SBCG130A11	2′		1
○	SBCG130C01	click		1
○	SBCG170G00	full		1
○	SBCG160C00	long		1
○	SBCG160C00	mode selector, musical display		1
○	SBCG140A04	bass 8′	bass	1
○	SBCG140A03	bass 16′		1
○	SBCG140B10	electric bass		1
○	SBCG140B11	acoustic bass		1
○	SBCG140F09	tuba		1
○	SBCG140F08	synthe bass		1
○	SBCG170G00	volume		2
○	SBCG140A05	march		1
○	SBCG140C03	8 beat	drum percussion selector	1
○	SBCG140A08	ballad		1
○	SBCG140C05	rumba		1
○	SBCG140A11	mambo		1
○	SBCG140C07	waltz		1
○	SBCG140A12	tango		1
○	SBCG140C06	samba		1
○	SBCG140A10	bossanova I		1
○	SBCG140C04	disco I		1
○	SBCG140A07	16 beat		1
○	SBCG140C01	swing I		1
○	SBCG140B13	I	arrange percussion	1
○	SBCG140B14	II		1

	Part No.	Description	Per/Set
○	SBCG170G00	volume } drum percussion	2
○	SBCG140K01	on } drum percussion	1
○	SBCG140J01	mellow } drum percussion	1
○	SBCG140B15	I/II } rhythmic orchestra	1
○	SBCG140E09	rhythmic } rhythmic orchestra	1
○	SBCG140E08	melodic } rhythmic orchestra	1
○	SBCG170G00	volume } rhythmic orchestra	2
○	SBCG140L00	tempo set	1
○	SBCG140K02	I } fill in & intro	1
○	SBCG140K03	II } fill in & intro	1
○	SBCG140K04	cancel } Program Chord Computer	1
○	SBCG140J02	PCC } Program Chord Computer	1
○	SBCG140J03	fingered } Program Chord Computer	1
○	SBCG140A13	memory } Program Chord Computer	1
○	SBCG140L08	close/open } techni-chord	1
○	SBCG140D02	on } techni-chord	1
○	SBCG140F10	record	1
○	SBCG140E10	transpose	1
○	SBCG140A14	glide/rhythm } drum percussion control	1
○	SBCG140A15	synchro } drum percussion control	1
○	SBCG150G00	start/stop } drum percussion control	1
○	SBCG160C00	free set } tuning	1
○	SBCG170G00	volume } tuning	2
○	SBCG160C00	on } sustain	3
○	SBCG170G00	volume } sustain	8
○	SBCG170G00	main volume, digital reverb	2
○	SBCG140L00	Fullband Setting Computer	1
○	SHRG9390A	Lever } Tang switch button	26
○	SHRG9400A	case } Tang switch button	26
○	SHRG9410A	Lever } Push switch button	130
○	SHRG9430A	Lever (2 continuous) } Push switch button	3
○	SHRG9420A	Case } Push switch button	136
		INSTRUCTION BOOK	
○	SQFG1140	Instruction Book (ENGLISH, DEUTSCH, FRANÇAIS, ESPAÑOL, NEDERLANDS)	
○	SQFG1130	Instruction Book (ENGLISH, NORSK, SVENSKA, DANSK, SUOMI)	
○	SQFG1370	Instruction Book, (MC) only	

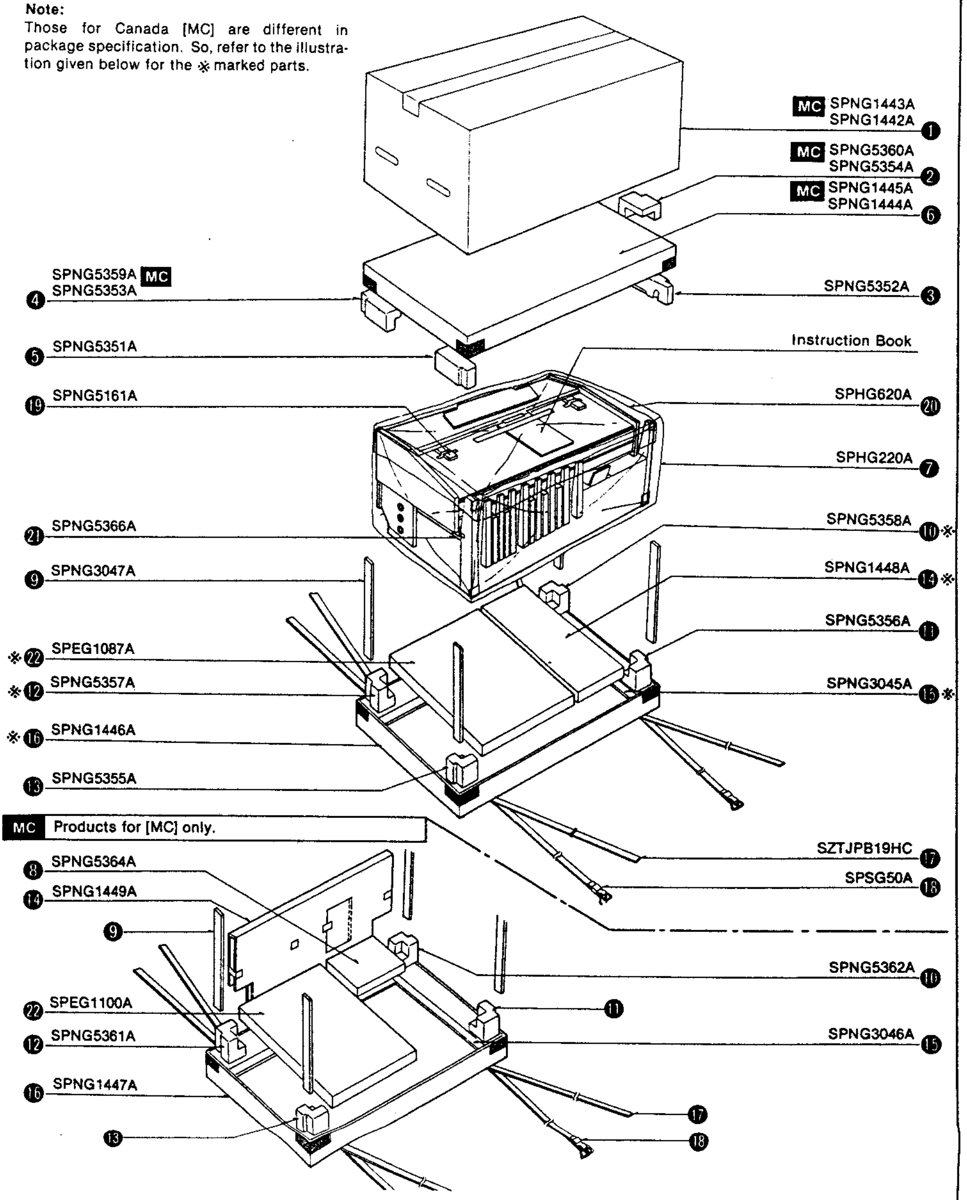
	Ref. No.	Part No.	Description	Per/Set
			PACKING PARTS	
○		SPNGE66EC	Packing Parts Assembly	1
○	1	SPNG1442A	Carton Box	(1)
○	2	SPNG5354A	Pad, Rear Right Side	(1)
○	3	SPNG5352A	Pad, Front Right Side	(1)
○	4	SPNG5353A	Pad, Rear Left Side	(1)
○	5	SPNG5351A	Pad, Front Left Side	(1)
○	6	SPNG1444A	Top Case	(1)
	7	SPHG220A	Polyethlene Bag	(1)
	8	—	—	—
○	9	SPNG3047A	Prop	(4)
○	10	SPNG5358A	Pad, Rear Right Side	(1)
○	11	SPNG5356A	Pad, Front Right Side	(1)
○	12	SPNG5357A	Pad, Rear Left Side	(1)
○	13	SPNG5355A	Pad, Front Left Side	(1)
○	14	SPNG1448A	Packing, Side Panel	(1)
○	15	SPNG3045A	Frame	(1)
○	16	SPNG1446A	Bottom Case	(1)
	17	SZTJPB19HC	Band	(2)
	18	SPSG50A	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG620A	Protection Cover	1
○	21	SPNG5366A	Pad, Cabinet	2
	22	SPEG1087A	Packing Parts Assembly Bench	1

MC Products for Canada only

	Ref. No.	Part No.	Description	Per/Set
			PACKING PARTS [MC]	
○		SPNGE66ED	Packing Parts Assembly	1
○	1	SPNG1443A	Carton Box	(1)
○	2	SPNG5360A	Pad, Rear Right Side	(1)
○	3	SPNG5352A	Pad, Front Right Side	(1)
○	4	SPNG5359A	Pad, Rear Left Side	(1)
○	5	SPNG5351A	Pad, Front Left Side	(1)
○	6	SPNG1445A	Top Case	(1)
	7	SPHG220A	Polyethlene Bag	(1)
○	8	SPNG5364A	Spacer	(1)
○	9	SPNG3047A	Prop	(4)
○	10	SPNG5362A	Pad, Rear Right Side	(1)
○	11	SPNG5356A	Pad, Front Right Side	(1)
○	12	SPNG5361A	Pad, Rear Left Side	(1)
○	13	SPNG5355A	Pad, Front Left Side	(1)
○	14	SPNG1449A	Packing, Side Panel	(1)
○	15	SPNG3046A	Frame	(1)
○	16	SPNG1447A	Bottom Case	(1)
	17	SZTJPB19HC	Band	(2)
	18	SPSG50A	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	20	SPHG620A	Protection Cover	1
○	21	SPNG5366A	Pad, Cabinet	2
○	22	SPEG1100A	Packing Parts Assembly, Bench	1

PACKING

Note:
Those for Canada [MC] are different in package specification. So, refer to the illustration given below for the ※ marked parts.


MC SPNG1443A
SPNG1442A ①
MC SPNG5360A
SPNG5354A ②
MC SPNG1445A
SPNG1444A ⑥
SPNG5359A MC
SPNG5353A ④
SPNG5352A ③
SPNG5351A ⑤
Instruction Book
SPNG5161A ⑲
SPHG620A ⑳
SPHG220A ⑦
SPNG5366A ㉑
SPNG5358A ⑩※
SPNG3047A ⑨
SPNG1448A ⑭※
SPNG5356A ⑪
※㉒ SPEG1087A
※⑫ SPNG5357A
SPNG3045A ⑮※
※⑯ SPNG1446A
⑬ SPNG5355A
MC Products for [MC] only.
SZTJPB19HC ⑰
SPSG50A ⑱
⑧ SPNG5364A
⑭ SPNG1449A
⑨
SPNG5362A ⑩
⑪
㉒ SPEG1100A
⑫ SPNG5361A
SPNG3046A ⑮
⑯ SPNG1447A
⑰
⑱
⑬